

APPENDIX 5

ACCESS ROAD OPTION PHASE 1 SURVEY

**PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
FOR THE
ACCESS ALTERNATIVES**

STATE ROUTE 94 IMPROVEMENT PROJECT



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Prepared for:

California Department of Transportation District 11

4050 Taylor Street San Diego, CA 92110

Prepared by:

G. O. Graening, PhD, MSE
Registered Environmental Assessor, License #08060

Natural Investigations Company
6124 Shadow Lane, Citrus Heights, CA 95621
(916) 452-5442



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SUMMARY

This report presents the findings of a Phase I Environmental Site Assessment (ESA) for the access alternatives considered in the State Route 94 Improvement Project. The study area is located approximately 1 mile south of Jamul, California. For the purposes of this assessment, all access road options were combined into one study area. The focal properties of this assessment are portions of 3 parcels: an 87-acre parcel (APN 597-060-05-00), 4-acre parcel (APN 597-060-04-00), and a 10-acre parcel (APN 597-042-13-00)—as well as the affected portions of the CalTrans right-of-way corridor of State Route 94 from 1/4-mile north of Melody Road to 1/2 mile south of the Jamul Indian Village, Melody Road, and the frontage and driveways of other affected parcels.

Natural Investigations Company has performed this Phase I ESA in conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Practice E 1527-13 and in accordance with the prevailing standard of care for completing such assessments in California at this time. Exceptions to, or deletions from, this practice are described in Section 10 of this report.

The 87-acre parcel has been used for at least 60 years as cattle pasture. The 4-acre parcel served as the Jamul fire station, but is now vacant with no improvements other than remnant pavement. The 10-acre parcel has a defunct orchard and irrigation system, as well as 2 wells and old pumping equipment. The surrounding land uses are as follows: to the south, the Rancho Jamul Ecological Reserve and the Hollenbeck Canyon Wildlife Area, and private rangeland; to the north, residential subdivisions and the town of Jamul; to the east, Highway 94, the new Jamul Fire Station, private estates (Peaceful Valley Ranch Estates), and hayfields; and to the west, private estates and smaller residences. The Jamul Indian Village (JIV) contains 2 pre-fabricated buildings that are used for tribal administrative purposes. Approximately 15 pre-fabricated homes have been removed from the Village. A community center was just constructed; a church and cemetery are contiguous to this center.

No environmental liens or value reductions were found in association with the Property. No indication of heavy industrial uses was detected from title review. The Property was not listed in any of the environmental databases queried. A review of physical setting sources and historical use information (topographic maps, aerial photography, fire insurance maps, city directories, and building permits) did not detect any indications of possible recognized environmental conditions within the Study Area. Site reconnaissance was performed on May 15, 2013; no indications of possible recognized environmental conditions were noted on the Property. On May 15, 2013, the environmental assessor met with Caltrans staff: no indications of possible recognized environmental conditions were uncovered.

There were a few minor data failures with the physical setting and historical information sources. However, a combination of other data sources was available such that no significant data gap existed, and the historical research objectives were achieved. There were no data gaps that significantly affected our ability to identify recognized environmental conditions associated with the property. Except for the limitations and exceptions discussed in Section 2.4, this Phase I ESA complies with the ASTM Standard 1527-13. No additional services beyond the scope of the ASTM Standard 1527-13 were conducted as part of this assessment.

The Study Area is located in a rural area and has historical development of rangeland, roadways, residences, tribal administrative buildings, an orchard, and a fire station. The only known historical usage of hazardous materials or petroleum products was that that was associated with the fueling station at the fire station, which was a permitted facility that was regularly inspected by the County.

One minimal, or *de minimis*, environmental condition exists pursuant to the ASTM standard:

- the Study Area has been subject to illegal dumping of residential garbage. Most of the visible material consists of household trash and abandoned automobile parts and household appliances. Note that

both the California Integrated Waste Management Board (CalRecycle) and the Upper San Luis Rey Community Services District are funding a project to remove such nuisance solid waste and prevent future illicit dumping.

It is Natural Investigations Company's opinion that there are no historical or current recognized environmental conditions in connection with the Study Area pursuant to the ASTM Practice E 1527-13. Records review, database searches, or interviews failed to identify any environmental conditions in connection with the Study Area. Therefore, no further site investigation is recommended by Natural Investigations Co.

Although the ASTM standard practice for Phase I ESA's considers lead paint an out-of-scope subject, California Department of Transportation (Caltrans) requested a discussion of the potential hazard of lead in construction/demolition materials for this project.

Historical lead emissions from automobiles are a recognized source of contamination in soils along heavily-used roadways (i.e., aerially deposited lead or ADL). Thus, surface and near-surface soils along such roadways have the potential to contain elevated concentrations of lead. Implementation of the project may require the excavation and export of soils from the project area; soil within, and adjacent to, the Caltrans rights-of-way usually contain ADL. According to Caltrans' requirements, prior to construction ADL levels must be determined in order to handle the soil appropriately. Caltrans has a variance with the DTSC that will allow the Department to keep soil with hazardous levels of ADL within the right-of-way depending on the level of contamination that is found.

Yellow traffic paint used prior to 1999 contained high concentrations of lead. Implementation of the project may require the removal of traffic stripe paint from the underlying asphalt concrete by grinding or sand blasting, which would create a paint waste stream. All traffic striping and traffic marking paints contain lead, but it is not known whether it is at hazardous levels or not. According to Caltrans' requirements, this paint waste must be sampled and analyzed prior to disposal. Disposal of removed traffic stripe paint materials is also dependent on the method utilized to remove these materials (i.e. focused stripe removal vs. pavement grinding).

According to Caltrans' requirements, no soil shall be disturbed or exported from the State right-of-way project area before an ADL study is completed. No paint striping shall be removed before a lead compliance plan is implemented. Cal/OSHA and Caltrans require a lead compliance plan when lead is known to be present. The potential presence of elevated lead concentrations requires sampling and analytical testing of any exported soil and any traffic paint materials to determine appropriate health and safety procedures and proper management and disposal practices. A project-specific Lead Compliance Plan will be required and must be prepared by a Certified Industrial Hygienist and properly implemented by the contractor. As specified in this plan, lead-containing materials must be sampled and analyzed prior to disposal. A dust control plan and health and safety plan should also be prepared and implemented to minimize worker exposure to lead and any other hazardous materials.

Two common hazards should also be noted: portions of the Study Area near the Willow Creek channel may be located within a 100-year or 500-year floodplain, and the region is prone to flash floods; and the Study Area contains dense, dry vegetation that may fuel wildfire, and the region is located within an area of moderate to high level of fire hazard.

This summary should only be read in conjunction with the full text of the report. The scope of work, significant assumptions, limitations, and exceptions should be understood prior to reading the site-specific information, findings, opinions, and conclusions. Except for any limitations and exceptions discussed in Section 2.4, this Phase I ESA complies with the ASTM Standard 1527-13. No additional services beyond the scope of the ASTM Standard 1527-13 were conducted as part of this assessment.

1. INTRODUCTION

1.1. PURPOSE

The ASTM (2013) defines the purpose of the Phase I ESA as quoted:

"The purpose of this practice is to define good commercial and customary practice in the United States of America for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)(42 U.S.C. §9601) and petroleum products. As such, this practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability (hereinafter, the 'landowner liability protections,' or 'LLPs'): that is, the practice that constitutes 'all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice' as defined at 42 USC § 9601(35)(B)." (page 1, ASTM, 2013).

In 2002, the Small Business Liability Relief and Brownfields Revitalization Act was passed, and it directed the United States Environmental Protection Agency (USEPA) to promulgate a rule defining due diligence for compliance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This rule, which is generally referred to as All Appropriate Inquiry (AAI), was adopted in 2002; it states that ASTM E1527-13 complies with the USEPA requirements for AAI. In some cases the ASTM 1527-13 is more stringent than AAI.

1.2. DETAILED SCOPE OF SERVICES

The ASTM (2013) describes the general scope of services in the following excerpts:

"A Phase I Environmental Site Assessment shall have four components: records review; site reconnaissance; interviews; and report." (page 12, ASTM, 2013).

"In defining a standard of good commercial and customary practice for conducting an environmental site assessment of a parcel of a property, the goal of the processes established by this practice is to identify recognized environmental conditions. The term recognized environmental conditions means the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a threat to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." (page 1, ASTM, 2013).

"The scope of this practice includes research and reporting requirements that support the user's ability to qualify for the LLPs. As such, sufficient documentation of all sources, records, and resources utilized in conducting the inquiry required by this practice must be provided in the written report." (page 2, ASTM, 2013).

The scope of services was limited to a qualitative evaluation of environmental conditions of the Study Area. The specific scope of services performed for this Phase I ESA included the following tasks:

- Records research, including review of title records (title report provided by user), historical aerial photography, topographic maps, fire insurance maps and municipal and county case files, where available
- Requisition and analysis of an environmental database query report from a reputable research company

- Site reconnaissance, including photographic documentation
- Interviews, where possible, with previous and current property owners and tenants
- Interaction with applicable municipal and state agency personnel to review available environmental records and permits
- Preparation and submittal of a Phase I ESA report summarizing the results of the records research, site reconnaissance, and interviews, the rendering of a professional opinion on any recognized environmental conditions and impacts upon the property, and the inclusion of all reference material.

The scope of services does not include other services that are not described in this report. Section 1.3 details significant assumptions, limitations, and exceptions to the performance of this Phase I ESA.

1.3. SIGNIFICANT ASSUMPTIONS, LIMITATIONS, AND EXCEPTIONS

ASTM Standard Practice E 1527-13 cites many assumptions, limitations, and exceptions in the performance of a Phase I ESA. Some of the most important are quoted in the following excerpts:

"This practice does not address whether requirements in addition to appropriate inquiry have been met in order to qualify for the LLPs (for example, the duties specified in 42 U.S.C. § 9607(b)(3)(a) and (b))." (page 1, ASTM, 2013).

"This practice does not address requirements of any state or local laws or of any federal laws other than the all appropriate inquiry provisions of the LLPs. Users are cautioned that federal, state, and local laws may impose environmental assessment obligations that are beyond the scope of this practice. Users should also be aware that there are likely to be other legal obligations with regard to hazardous substances or petroleum products discovered on property that are not addressed in this practice and that may pose risks of civil and/or criminal sanctions for non-compliance." (pages 1-2, ASTM, 2013).

"No environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with a property, and this practice recognizes reasonable limits of time and cost." (page 9, ASTM, 2013).

"Appropriate inquiry does not mean an exhaustive assessment of a clean property. There is a point at which the cost of information obtained or the time required to gather it outweighs the usefulness of the information and, in fact, may be a material detriment to the orderly completion of transactions. One of the purposes of this practice is to identify a balance between the competing goals of limiting the costs and time demands inherent in performing an environmental site assessment and the reduction of uncertainty about unknown conditions resulting from additional information." (page 9, ASTM, 2013).

"Not every property will warrant the same level of assessment. Consistent with good commercial or customary practice, the appropriate level of environmental site assessment will be guided by the type of property subject to assessment, the expertise and risk tolerance of the user, and the information developed in the course of the inquiry" (page 10, ASTM, 2013).

"This practice does not include any testing or sampling of materials (for example, soil, water, air, building materials)." (page 12, ASTM, 2013).

"There may be environmental issues or conditions at a property that parties may wish to assess in connection with commercial real estate that are outside of the scope of this practice (the non-scope considerations). As noted by the legal analysis in Appendix X1 of this practice, some substances may be present on the property in quantities and under conditions that may lead to contamination of

the property or of nearby properties but are not included in CERCLA's definition of hazardous substances (42 U.S.C. § 9601(14)) or do not otherwise present potential CERCLA liability. In any case, they are beyond the scope of this practice." (page 21, ASTM, 2013).

"Whether or not a user elects to inquire into non-scope considerations in connection with this practice or any other environmental site assessment, no assessment of such non-scope considerations is required for appropriate inquiry as defined by this practice." (page 21, ASTM, 2013).

"There may be standards of protocols for assessment of potential hazards and conditions associated with non-scope conditions developed by governmental entities, professional organizations, or other private entities." (page 21, ASTM, 2013).

"Following are several non-scope considerations that persons may want to assess in connection with commercial real estate. No implication is intended as to the relative importance of inquiry into such non-scope considerations, and this list of non-scope considerations is not intended to be all-inclusive: asbestos-containing materials; radon; lead-based paint; lead in drinking water; wetlands; regulatory compliance; cultural and historical resources; industrial hygiene; health and safety; ecological resources; endangered species; indoor air quality; biological agents; and mold." (page 22, ASTM, 2013).

Natural Investigations Company, as an independent and impartial contractor, has completed this Phase I ESA in accordance with ASTM guidelines and in accordance with the prevailing standard of care for completing such assessments in California at this time. Natural Investigations Company shall not be subject to any express or implied warranties whatsoever. Phase I ESAs are non-comprehensive by nature and are unlikely to identify all environmental problems or eliminate all risk. This report is a qualitative assessment. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help the User understand and better manage risks associated with the property. No warranty, either expressed or implied, is made. Land use, Site conditions, and other factors will change over time. This report should not be relied upon after **180 days** from the date of issuance, unless additional services are performed as defined in ASTM E 1527-13 - Section 4.7.

The property owner is solely responsible for notifying all governmental agencies, and the public at large, of the existence, release, treatment, or disposal of, any hazardous substance or petroleum product occurring on the Site, either before, during, or after Natural Investigation Company's services. Natural Investigation Company assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury which results from pre-existing materials being encountered or being present on the Site, or from the discovery of such hazardous substances or petroleum products.

This report and other instruments or service are prepared and made available for the sole use of the User and their agents. The contents may not be used or relied upon by any other persons without the express written consent and authorization of the User.

1.4. SPECIAL TERMS AND CONDITIONS

There are no special terms or contractual conditions for this assessment.

1.5. INFORMATION RELIANCE

Information reliance is defined by ASTM as:

"An environmental professional is not required to verify independently the information provided but may rely on information provided unless he or she has actual knowledge that certain information is incorrect or unless it is obvious that certain information is incorrect based on other information obtained in the

Phase I Environmental Site Assessment or otherwise actually known to the environmental professional." (page 12, ASTM, 2013).

This report is for the sole benefit and exclusive use of the User in accordance with the contract under which these services have been provided. It is possible that information exists beyond the scope of this assessment. Additional information, which was not found or available to Natural Investigations Company at the time of report preparation, may result in a modification of the conclusions and recommendations presented herein. Any reliance on this report by third parties shall be at their own risk.

2. SITE DESCRIPTION

2.1. LOCATION AND LEGAL DESCRIPTION

The study area is located approximately 1 mile south of Jamul, California (Figure 2.1). The SR-94 access road improvements would tie into a new access road to the Jamul Indian Village on either: (1) Reservation Road, which connects the JIV to SR-94; (2) Daisy Drive on the adjacent 4-acre parcel (north of the JIV) contiguous with the JIV and SR-94; or (3) via a new roadway constructed from Melody Road south to the JIV. For the purposes of this assessment, all access options were combined into one study area (Figure 2.1). The focal properties of this assessment are portions of 3 parcels—an 87-acre parcel (APN 597-060-05-00), 4-acre parcel (APN 597-060-04-00), and a 10-acre parcel (APN 597-042-13-00)—as well as the affected portions of the CalTrans right-of-way corridor of State Route 94 from 1/4-mile north of Melody Road to 1/2 mile south of the Jamul Indian Village, Melody Road, and the frontage and driveways of other affected parcels, as shown in Figures 3A through 3E.

2.2. SITE AND VICINITY GENERAL CHARACTERISTICS

The Study Area is located within the Peninsular Ranges geographic subregion, which is contained within the Southwestern geographic subdivision of the larger California Floristic Province (Hickman 1993). The region is in climate Zone 21 – “Ocean-influenced southern California”, characterized by infrequent frost, with mild to hot, dry summers and mild, wet winters moderated by marine air influx (Hickman, 1993; Brenzel, 2001). The topography of the Study Area is variable and slopes generally to the south. The elevation ranges from approximately 840 feet to 1,120 feet above mean sea level. The general direction of surface runoff in the Study Area is to the south via Willow Creek, an intermittent drainage tributary to Jamul Creek. Surrounding parcels consist of a combination of residences on lots several acres in size, rangeland, or lands in their natural state. Dirt roads serve as fire breaks. Jamul is a residential rural community, which serves as a “bedroom community” to the greater metropolitan San Diego area and also includes ranching and cattle raising.

2.3. CURRENT USE OF THE STUDY AREA AND IMPROVEMENTS

The 4-acre parcel and the 10-acre parcel are not currently in active use and existing improvements have been removed or abandoned. The 87-acre parcel is used as cattle pasture. Weeds and tall grass appear to have been periodically mowed or cut back. The 87-acre parcel has been used for at least 60 years as cattle pasture. The 4-acre parcel served as the Jamul fire station, but is now vacant with no improvements other than remnant pavement. The 10-acre parcel has a defunct orchard and irrigation system, as well as 2 wells and old pumping equipment.

2.4. CURRENT USES OF ADJOINING PROPERTIES

The surrounding land uses are as follows: to the south, the Jamul Indian Village (JIV), Rancho Jamul Ecological Reserve and the Hollenbeck Canyon Wildlife Area, and private rangeland; to the north, residential subdivisions and the town of Jamul; to the east, Highway 94, the new Jamul Fire Station, private estates (Peaceful Valley Ranch Estates), and hayfields; and to the west, private estates and smaller residences.

The Jamul Indian Village is used for administrative purposes, and also a church, cemetery, and community center. The Jamul Indian Village contains 2 pre-fabricated buildings that are used for tribal administrative purposes. Approximately 15 pre-fabricated homes have been removed from the Village. A community center was just constructed.

3. USER-PROVIDED INFORMATION

The “User” is defined as the party seeking to use Practice E 1527 to complete an environmental site assessment of the property. A user may include, without limitation, a potential purchaser of property, a potential tenant of property, an owner of property, a lender, or a property manager.

In the case of this assessment, the User is the project proponent, Jamul Indian Village, its consultants, such as Environmental Data Systems Inc., and the lead CEQA agency, Caltrans.

3.1. USER’S RESPONSIBILITIES

User’s responsibilities are defined by the ASTM E 1527-13 standard, and include the following, as quoted:

“Any environmental liens or activity and use limitations so identified shall be reported to the environmental professional conducting a Phase I Environmental Site Assessment. Unless added by a change in the scope of work to be performed by the environmental professional, this practice does not impose on the environmental professional the responsibility to undertake a review of recorded land title records and judicial records for environmental liens or activity and use limitations.” (p. 11, ASTM, 2013)

“If the user is aware of any specialized knowledge or experience that is material to recognized environmental conditions in connection with the property, it is the user’s responsibility to communicate any information based on such specialized knowledge or experience to the environmental professional.” (p. 11, ASTM, 2013)

“The user should try to identify an explanation for a lower price which does not reasonable reflect fair market value if the property were not contaminated, and make a written record of such explanation.” (p. 11, ASTM, 2013)

“If the user is aware of any commonly known or reasonably ascertainable information within the local community about the property that is material to recognized environmental conditions in connection with the property, it is the user’s responsibility to communicate such information to the environmental professional.” (p. 11, ASTM, 2013)

“Either the user shall make known to the environmental professional the reason why the user wants to have the Phase I Environmental Site Assessment performed or, if the user does not identify the purpose of the Phase I Environmental Site Assessment, the environmental professional shall assume the purpose is to qualify for an LLP to CERCLA liability and state this in the report.” (page 11, ASTM, 2013).

In order to exert an LLP, the User must satisfy a number of statutory requirements that are generally referred to as Continuing Obligations, which are outside the Scope of Services of the Phase I ESA. Examples of Continuing Obligations include providing legally required notices stopping continuing releases and complying with land use restrictions. Failure to comply with these and other statutory post-acquisition requirements will jeopardize liability protection. It is the responsibility of the User to comply with the Continuing Obligations requirements of ASTM E1527-13 and All Appropriate Inquiry.

3.2. REQUESTED DOCUMENTS AND INFORMATION

The following documents and information were requested of Caltrans on May 16, 2013:

- Previous environmental site assessments or environmental compliance audit reports
- Environmental permits or hazardous waste generator notices/reports
- Registrations for aboveground or underground storage tanks
- Location of septic systems, oil wells, or water wells
- Registrations for underground injection systems
- Material Safety Data Sheets; Community Right to Know Plans or Safety, Preparedness and prevention Plans; Spill Protection, Countermeasures and Control Plans
- Hazardous Material Business Plans
- Geotechnical studies or hydrological studies
- Notices or other correspondence from any government agency relating to past or current violations of environmental laws with respect to the Property or relating to environmental liens encumbering the Property.
- Risk assessments
- Recorded Activity Use Limitations
- Proceedings regarding hazardous substances and petroleum products including any pending, threatened or past: litigation; administrative proceedings; or notices from any governmental entity regarding possible violations of environmental laws or other possible liability related to hazardous substances or petroleum products.

No documents specific to the Study Area were provided in response to Natural Investigations' information request. Documents were either provided in an earlier version of this assessment, or they were not available or they did not exist / did not apply to the Study Area.

3.3. TITLE RECORDS

No title reports were provided to Natural Investigations Co. Surrounding parcel information is listed in Table 3-1, according to the County Assessor database. No indication of heavy industrial uses was detected from title review.

A title report was not provided by the User. Title records of the Study Area were previously searched by Dr. Graening on 4 May 2010 at the County of San Diego Assessor's Office and Recorder's Office. An attempt was made to build the chain of title back at least 50 years from the present, with focus upon the names of entities in deeds and leases that might indicate industrial uses, and any statement of reduced value or liens on the title, especially environmental protection liens recorded pursuant to CERCLA. No indication of industrial uses was detected from chain of title review. The chain of title for the 10-acre parcel (APN 597-04-213) is typical for the entire Study Area (Table 1), and documents ownership by families for non-industrial uses.

Table 3-1. Chain of Title for 10-acre parcel (APN 597-04-213)

| Grantor Grantee | Deed Type | Document Type |
|---|------------------|--------------------------|
| Sacco Adolph & Dorothy and Louis Dolores Lakes Resort Kean Argevitz Calif. LLC | Grant Deed | 2000 |
| Nicholas Pellegrino Sacco et ux | Grant Deed | 1989 |
| APN changed to 597-040-99-00 | | 1989 |
| Unknown APN change in 1950s-1960s | | unknown |

3.4. ENVIRONMENTAL LIENS OR ACTIVITY AND USE LIMITATIONS

An environmental lien is a charge, security, or encumbrance upon the title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of hazardous substances or petroleum products upon the property. No environmental liens or activity and use limitations were made aware to Natural Investigations Company. No evidence of environmental liens was identified during the title review, interview process, or records review.

3.5. SPECIALIZED KNOWLEDGE OR ACTUAL KNOWLEDGE

No specialized knowledge or actual knowledge that is material to recognized environmental conditions in connection with the Study Area was provided by the User to Natural Investigations Company.

The following environmental assessments analyzed parcels that included the entirety of, or portions of, the Study Area (presented in Appendix 15.1.2).

Level I Survey – 2002. Prepared by ESA, Inc.

A Level I Survey was conducted for the Jamul Indian Village project area in 2000 by ESA Inc. for Jamul Indian Village Environmental Assessment (BIA 2001), and updated by Analytical Environmental Services Inc. in 2002 for the Jamul Indian Village Environmental Impact Statement (BIA 2003). These previous assessment areas consisted of the 87-acre parcel, the 4-acre parcel, the 10-acre parcel, and the Jamul Indian Village. The surveys included a contaminant survey checklist, field reconnaissances,

and database queries by EDR, in accordance with the ASTM Standard Practice for Environmental Site Assessments E 1527-00 and the Bureau of Indian Affairs guidelines. Existing hazardous materials usage was reported as follows:

- Minor quantities of household debris (consisting of paper refuse, glass bottles, aluminum cans, etc.) were observed to be scattered along the eastern edge of the project area (along Highway 94), at the northern end of the project area (along Melody Road), and around the southern end of the project area (along the un-named dirt road near the fire station, residential area and cemetery). Such trash is typical of vacant land located near major roadways. Discarded chemical products or drums were not observed on the subject Study Area.
- Each of the 15 residential structures [within the Jamul Indian Village] has a five-hundred-gallon propane tank associated with it (BIA 2003).

The report concluded that no recognized environmental conditions existed at the site other than *de minimis* (i.e., insignificant) conditions such as roadside litter. No further investigation was recommended.

Level I Hazardous Materials Assessment – 2007. Prepared by Natural Investigations Co.

In 2007, a Level I hazardous materials assessment was conducted by Natural Investigations Co. (2007) of the majority of the current Study Area. The hazards/hazardous materials assessment consisted of a field reconnaissance, database queries, and impact analysis. The field survey detected no significant environmental conditions other than *de minimis* presence of trash. Database searches produced no reported sites within the project area or immediate vicinity, except licensed use of fuel storage tanks by the Jamul fire station and household propane usage.

Level I Hazardous Materials Assessment – 2009. Prepared by Natural Investigations Co.

A follow-up Level I hazardous materials assessment was conducted for the proposed project by Natural Investigations Co. in 2009. This assessment included a database query and field reconnaissance to update previous assessments, and to survey areas that were not previously surveyed. Since the previous survey was completed, the homes and buildings on the JIV have been removed, and the fire station on the 4-acre parcel was removed and relocated across SR-94, and roadway improvements were made on the JIV and the 4-acre parcel.

Phase I Environmental Site Assessment for the Jamul Gaming Project, San Diego Co., CA, 2010. Prepared for Environmental Data Systems Inc. & Jamul Indian Village. Prepared by Natural Investigations Co.

In 2010, a Phase I ESA was conducted by Natural Investigations Co. of the current Study Area, but not the Jamul Indian Village itself. Records review, database searches, and interviews failed to identify any environmental conditions in connection with the Study Area other than *de minimis* disposal of household solid waste onto the Study Area. The assessment concluded that no further site investigation was warranted.

Phase I Environmental Site Assessment for the Jamul Gaming Project and Access Project, San Diego Co., CA, 2012. Prepared for Environmental Data Systems Inc. & Jamul Indian Village. Prepared by Natural Investigations Co.

In 2012, a Phase I ESA was conducted by Natural Investigations Co. of the current Study Area, including the Jamul Indian Village itself. Records review, database searches, and interviews failed to identify any environmental conditions in connection with the Study Area other than *de minimis* disposal of household solid waste onto the Study Area. The assessment concluded that no further site investigation was warranted.

These documents are incorporated by reference.

3.6. VALUATION REDUCTION FOR ENVIRONMENTAL ISSUES

No valuation reductions for environmental issues were made aware to Natural Investigations Company. No valuation reductions were identified during the interview process or by the title review.

3.7. OWNER, PROPERTY MANAGER, AND OCCUPANT INFORMATION

The 87-acre parcel, and the 10-acre parcel are owned by Lakes Entertainment, LLC. The Jamul Indian Village and the 4-acre parcel are owned by the Jamul Indian Village. The owner of the road rights-of-way is either Caltrans or County of San Diego.

3.8. REASON FOR PERFORMING PHASE I ESA

Natural Investigations Company performed this Phase I ESA at the request of Environmental Data Systems, Inc. This assessment was performed in support of the requirements of the California Environmental Quality Act and the National Environmental Policy Act as they apply to the proposed access improvement project and the accompanying environmental impact reports and statement. Specifically, this Phase I ESA is intended to be used to evaluate the hazards and hazardous materials setting in the Study Area, determine potential impacts of hazards and hazardous materials upon the proposed project, and identify potential mitigation measures to reduce negative impacts of hazardous materials to a less-than-significant level.

4. RECORDS REVIEW

The purpose of the records review is to obtain and review records that will help identify recognized environmental conditions in connection with the property.

4.1. STANDARD ENVIRONMENTAL RECORD SOURCES

As part of this assessment, Natural Investigations Company retained the services of Environmental Data Resources, Incorporated (EDR), which queries and maintains comprehensive environmental databases and historical information, including proprietary databases, aerial photography, topographic maps, Sanborn Maps, and city directories. EDR's Phase I ESA standard package - "Radius Map with GeoCheck" was ordered and performed on April 18, 2013. In this report, EDR presents the results of searches of all reasonably ascertainable environmental databases (federal, state, local, and private) for records of potential environmental impacts of the Property and vicinity. EDR performed these database searches within the prescribed radii of ASTM Practice E 1527-13 (ASTM, 2013). The databases queried by EDR included the following:

Federal ASTM Standard and Supplemental – National Priority List (NPL); proposed NPL; Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); CERCLIS No Further Remedial Action Planned; Corrective Action Report; Resource Conservation and Recovery Act (RCRA) Information; RCRA Large Quantity Generator; Emergency Response Notification System; Superfund Consent Decrees; Records of Decision; NPL Deletions; Hazardous Materials Information Reporting System; Material Licensing Tracking System; Mines Master Index File; Federal Superfund Liens; PCB Activity Database System; Department of Defense Sites; Indian Reservations; Uranium Mill Tailings Sites; Engineering Controls Sites List; Open Dump Inventory; Formerly Used Defense Sites; RCRA Administrative Action Tracking System; Toxic Chemical Release Inventory System; Toxic Substances Control Act (TSCA); Section 7 Tracking Systems; Federal Insecticide, Fungicide, and Rodenticide Act / TSCA; US Brownfields; US Institutional Control Sites; Voluntary Clean-up Program Properties; State ASTM Standard and Supplemental – Proposition 65 Records; Toxic Pits Cleanup Act Sites; Bond Expenditure Plan; List of Underground Storage Tank (UST) Facilities; Voluntary Cleanup Program Facilities; Leaking UST on Indian Land; UST on Indian Land; Waste Discharge System; Deed Restriction Listing; Properties Needing Further Evaluation; No Further Action Determination; Well Investigation Program Case List; Emissions Inventory Data; School Property Evaluation Program; Former Manufactured Gas Sites.

The complete EDR Radius Map report is provided in Appendix 15.2.1. Results are summarized in EDR's overview map (Figure 4-1). The Study Area was not listed in any of the databases queried by EDR. The Study Area was previously listed in a few databases:

- Jamul Fire Station No. 66, 14145 Hwy 99, NPDES, HIST UST, SWEEPS, San Diego Co. Hazardous Materials Management Division Database, enrolled under construction general stormwater permit, registered diesel and gasoline underground storage tanks (USTs).

In the vicinity of the Study Area the following sites were listed, as summarized in EDR's Executive Summary:

- Peaceful Valley Ranch, San Diego Co. Hazardous Materials Management Division Database, leaking UST incident, petroleum substance release to soil, case open.
- Ameri/Mex, 14063 Hwy 94, HAZNET database, waste oil generator & disposal
- Rancho Jamul Auto Care, 13975 Campo Rd., HAZNET database, waste oil and solvents generator & disposal
- Fletcher Hills Medical Group 13967, San Diego Co. HMMD, hazmat inventory, unspecified
- Las Montanas Golf Course, Vista Rancho Miguel Road, SWEEPS UST database;
- Jamul Burnsite, Jamul Drive, LDS, FINDS, SWF/LF databases, licensed landfill;
- Rancho Miguel Estates, Jamacha Road and Steele Canyon, San Diego Co. Hazardous Materials Management Division Database, leaking UST incident, case closed;
- Jamul Christian School, P.O. Box 74, FINDS database, registered pesticide use;
- Gus Batton, 13212 Highway 94, San Diego Co. Dept. of Environmental Health database, leaking UST incident, oil release to soil, case closed

All of the sites are either historic hazardous materials release cases or involve permitted uses of hazardous materials.

It should be noted that the computerized geocoding technology used in the database search is based on available census data and is only accurate to ± 300 feet. The EDR report indicates that poor or inadequate address information was provided for various properties that are potentially located in the vicinity of the Study Area; therefore, these sites could not be readily mapped by EDR. Because the location of these sites with respect to the Study Area could not be determined, the evaluation of the unmappable sites is limited in terms of determining the potential impact on the Study Area. Although the list of the unmappable sites was reviewed for adjacent or nearby properties observed during the site reconnaissance, locating each of the unmapped sites identified by EDR is not considered practicable. None of these orphan sites appear to be connected to the Study Area in any way.

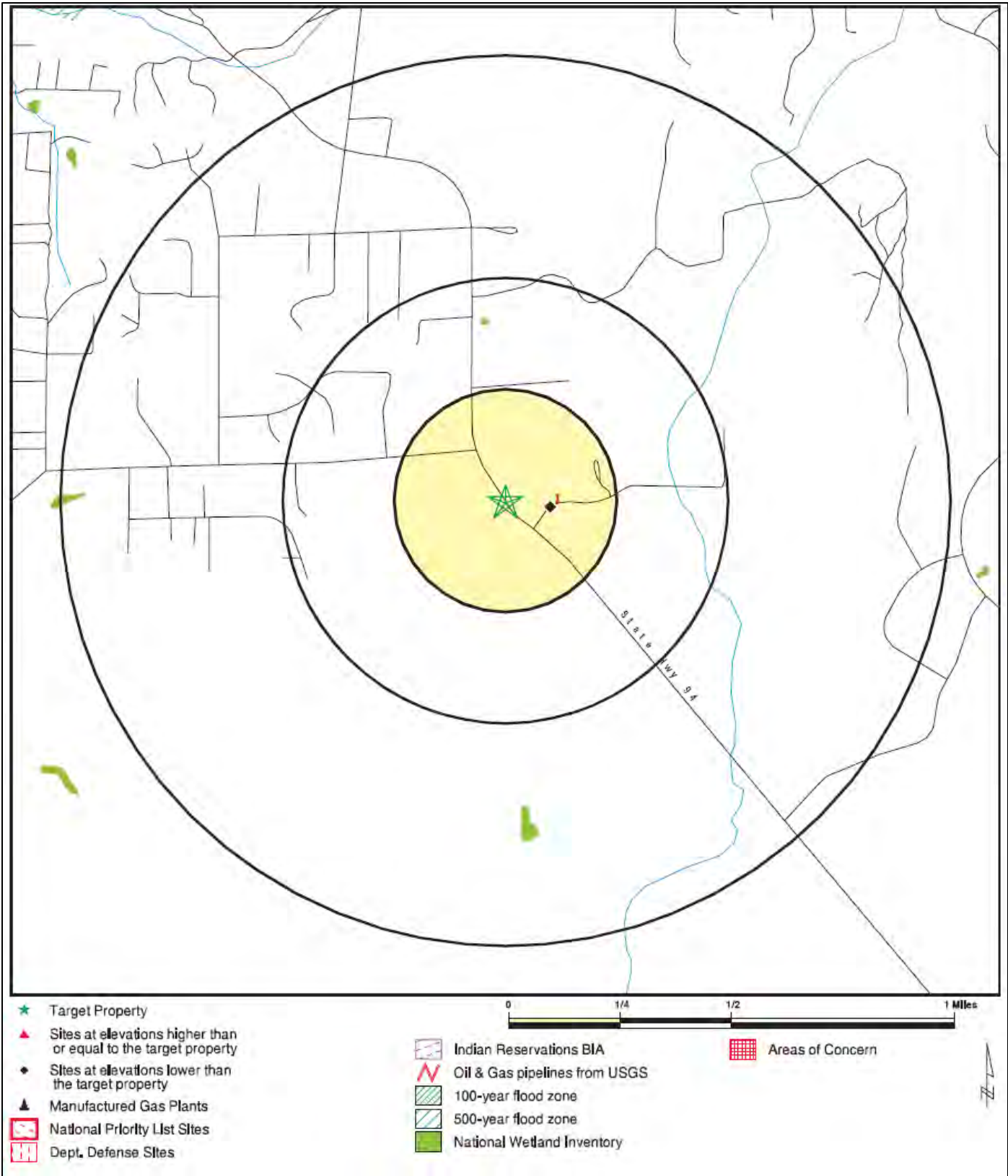


Figure 4-1. Overview Map, EDR Radius Report

4.2. ADDITIONAL ENVIRONMENTAL RECORD SOURCES

4.2.1.State of California Department of Toxic Substances Control Records

4.2.1.1. *Envirostor Database*

EnviroStor is an online search and Geographic Information System tool for identifying sites that have known contamination or sites for which there may be reasons to investigate further. Public Access to EnviroStor is accessible via the DTSC Web Page located at: <http://www.envirostor.dtsc.ca.gov/public/>. The EnviroStor database includes the following site types: Federal Superfund sites (National Priority List); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. You can obtain information that includes site name, site type, status, address, any restricted use (recorded deed restrictions), past use(s) that caused contamination, potential contaminants of concern, potential environmental media affected, site history, planned and completed activities. The EnviroStor database also contains current and historical information relating to Permitted and Corrective Action facilities. The EnviroStor database includes current and historical information on the following permit-related documents: facility permits; permit renewal applications; permit modifications to an existing permit; closure of hazardous waste management units (HWMUs) or entire facilities; facility corrective action (investigation and/or cleanup); and/or post-closure permits or other required postclosure activities.

The EnviroStor database was queried on May 30, 2013. The following screen capture (Figure 4-2) summarizes the results of the query. No reported cases were found on the Property. No new information was retrieved beyond that already found from EDR's report, summarized in the previous section of this assessment. The following cases were returned within 4,000 feet of the Study Area:

- Raul Rodriquez, 13886 Campo Rd., Jamul: LUST Cleanup Site; Cleanup Status: Completed - Case Closed
- Peaceful Valley Ranch, northeast corner of Peaceful Valley Ranch Rd. and Hwy 94, Jamul: Cleanup Program Site; Cleanup Status: Open - Site Assessment; Case opened 6/12/2006; site assessment began; no potential contaminants of concern specified.



Figure 4-2. Screen capture of EnviroStor database query

4.2.2. California State Water Resources Control Board / Regional Board Records

4.2.2.1. *GeoTracker Database*

GeoTracker is a geographic information system (GIS) maintained by the California State Water Resources Control Board (SWRCB) that provides online access to environmental data at the Internet address (URL) = <http://www.geotracker.swrcb.ca.gov/>. GeoTracker is the interface to the Geographic Environmental Information Management System (GEIMS), a data warehouse which tracks regulatory data about underground fuel tanks, fuel pipelines, and public drinking water supplies. GeoTracker and GEIMS were developed pursuant to a mandate by the California State Legislature (AB 592, SB 1189) to investigate the feasibility of establishing a statewide GIS for leaking underground fuel tank (LUFT) sites. GEIMS can store extensive data related to LUFT sites, or any other contaminant release. In addition, GEIMS is used to store and display information from various agencies including water quality information, water use information, and infrastructure data needed to assess both water supplies and contaminant sites. For the SWRCB's groundwater quality assessment goal, GEIMS has been populated with LUFT, public drinking water wells, and fuel pipelines for California. Site information from the Spills, Leaks, Investigations, and Cleanups (SLIC) Program is also included in GeoTracker.

The GeoTracker database was queried for environmental data pertaining to the Site on May 30, 2013. Using both spatial queries and text-based searches of bounding street addressees in GeoTracker, no reported cases were found on the Study Area or adjoining properties (Figure 4-3). The nearest reported cases are shown in the following table. The nearest is the Peaceful Valley Ranch case, from the Leaking Underground Fuel Tank database, which involved a petroleum release to soil circa 2006; the case has not been formally closed.

Table 4-1. GeoTracker Cases in the Vicinity of the Study Area

| SITE NAME | ADDRESS | CITY | CLEANUP STATUS |
|----------------------------|--|-------|-------------------------|
| DIANES MARKET | 13886 CAMPO RD | JAMUL | |
| JAMUL BURN SITE | CORNER OF JAMUL DR & MEX CAN | JAMUL | OPEN - INACTIVE |
| GEORGE BARBER LIVING TRUST | 13330 PROCTOR VALLEY RD | JAMUL | COMPLETED - CASE CLOSED |
| PEACEFUL VALLEY RANCH | 0 PEACEFUL VALLEY RANCH (NE CORNER @ HY 94) | JAMUL | OPEN - SITE ASSESSMENT |
| RAUL RODRIQUEZ | 13886 CAMPO RD | JAMUL | COMPLETED - CASE CLOSED |
| RAUL RODRIQUEZ | 13886 CAMPO RD | JAMUL | COMPLETED - CASE CLOSED |
| RAUL RODRIQUEZ | 13886 CAMPO RD | JAMUL | COMPLETED - CASE CLOSED |
| JAMUL PRIMARY SCHOOL | 14581 LYONS VALLEY RD | JAMUL | COMPLETED - CASE CLOSED |
| GUS BATTON | 13212 HY 94 | JAMUL | COMPLETED - CASE CLOSED |
| BECKER PROPERTY | 14232 OLIVE VISTA DR | JAMUL | COMPLETED - CASE CLOSED |
| JAMUL PRIMARY SCHOOL | 14581 LYONS VALLEY RD | JAMUL | COMPLETED - CASE CLOSED |

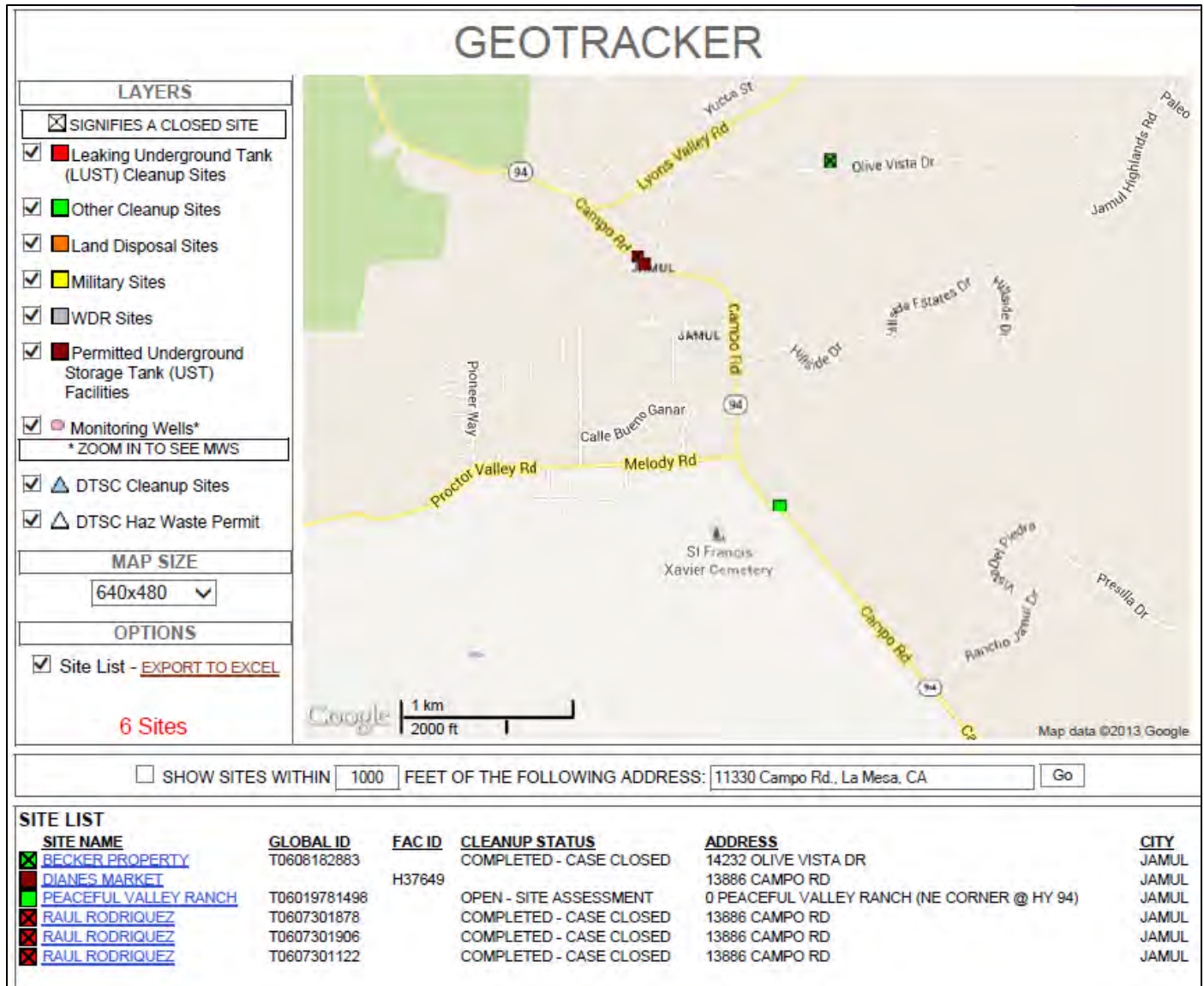


Figure 4-3. Spatial results of GeoTracker query

4.2.3. County / CUPA Records Search

The Unified Program (<http://www.calepa.ca.gov/CUPA/>) consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs. Cal/EPA and other state agencies set the standards for their programs while local governments implement the standards—these local implementing agencies are called Certified Unified Program Agencies (CUPA). For San Diego County, the County's Hazardous Materials Division is the CUPA.

The Hazardous Materials Division has made available on the Internet the Hazardous Materials Establishment Database, which contains database information such as: CUPA Facility Permit Number, Business Address, Business Name, Hazardous Waste & Materials Inventory (for active sites only), and Underground Storage Tank Information. The database is updated on a quarterly basis, and is available on the Internet at URL = http://www.sdcounty.ca.gov/deh/doing_business/hazmat_search.html. The Hazardous Materials Division has also made available on the Internet the Scanned Files Search, which is a digitizing of the former paper files, including written Inspection Reports, Notices, Correspondence, Permit

Applications, Underground Storage Tank Permits, Enforcement Case Information (completed cases), etc. The database is updated on a quarterly basis, and is available on the Internet at URL = http://www.sdcounty.ca.gov/deh/doing_business/hazmat_search.html. No relevant information was retrieved other than documents pertaining to the old Jamul Fire Station: 2 USTs removed in 1986, and replaced with ASTs; ASTs removed under permit in 2007.

4.3. PHYSICAL SETTING SOURCES

4.3.1. Geology, Soils, Topography, and Hydrology

The Study Area is located in the Peninsular Ranges geomorphic province, and specifically, in a shallow valley in the coastal mountains. Habitats in the vicinity consist primarily of disturbed roadside areas, developed areas, coastal sage scrub, coast oak woodland, and annual grassland. Naturally occurring soil in the vicinity include Fallbrook rocky sandy loam (FaC2, FaD2, FeE2), Ramona sandy loam (RaC2), Placentia sandy loam (PeC2, PfC), and Fallbrook-Vista sandy loam (FvE), and Cienega very rocky coarse sandy loam (CmrG), which has a high to very high erosion hazard (USDA, 1973). The topography of the Study Area is variable; elevation ranges from about 1,040 feet in the north along to about 860 feet in the lowest portion (Figure 4-4). No specific hydrogeologic data were readily available. Public and private groundwater wells and public water supplies identified in EDR's query of readily-available databases are over ½ mile from the Study Area.

The State Public Water Supply database lists the following wells in the Jamul area (from previous EDR reports): Circle J Ranch (no address); Sunrise Estates Municipal Water Supply (no address); Skyline Ranch Campground (no address); Indian Hills Camp at 15763 Lyons Valley Road, and Diamond Jack RV Ranch at 15724 Lyons Valley Rd.

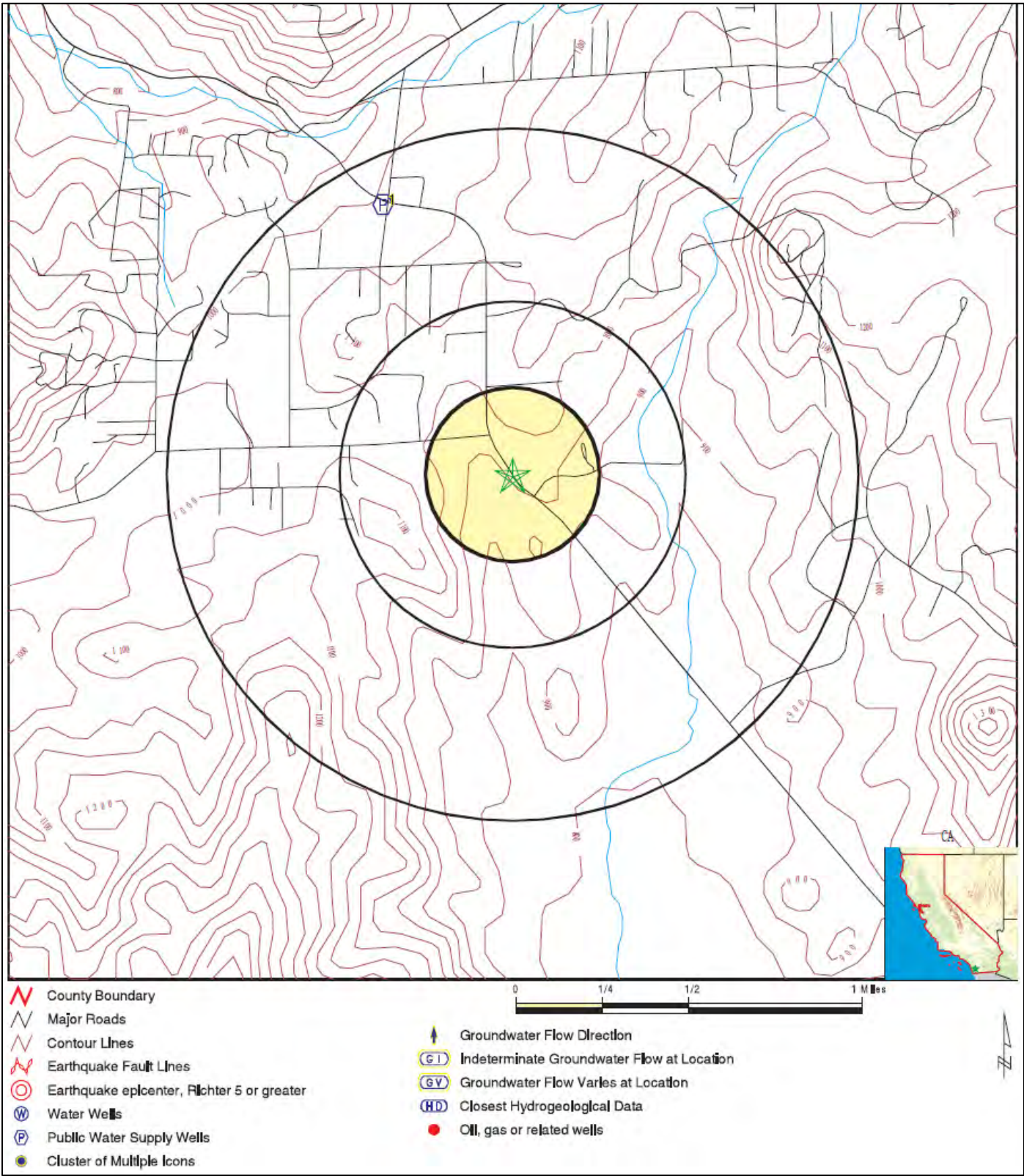


Figure 4-4. EDR's Physical Setting Map

4.4. HISTORICAL USE INFORMATION ON THE PROPERTY

The objective of consulting historical sources is to develop a history of the previous uses of the property and surrounding area, in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the property.

4.4.1. Topographic Map Analysis

Historical and current topographic maps of the Study Area were analyzed to determine any of the following: topography and inferred surface water and ground water flow direction; current and historical land use; and current and historical structures, utilities, and roads. All available USGS topographic quadrangle maps were obtained through EDR (Appendix 15.3), and span almost 1 century. The resolution of these maps was so coarse that only general land uses could be inferred. The topo sequence shows little change in land use in the Study Area, other than the gradual increase of residential subdivisions. No visual clues as to any possible recognized environmental conditions were evident from any of these topographic maps.

4.4.2. Aerial Photography Analysis

Historical aerial photographs of the Study Area were analyzed to determine the any of the following: current and historical land use; any current and historical structures, utilities, and roads; and any current or historical drum storage, above ground tanks, garbage dumps or landfills, or pits, ponds, or lagoons. The aerial photo chronology was provided by EDR (Appendix 15.3). The resolution of these maps was so coarse that only general land uses could be inferred. This historical aerial photo sequence, beginning with 1953, documents relatively little change in land use of the Study Area, except for an increase of residential development in the vicinity. On the 4-acre parcel, the fire station is not visible in 1990 aerial photos, but is visible by 1994, and through 2002; the station was removed circa 2006-2007. On the 10-acre parcel, aerial photography spanning the last 50 years shows the majority of the parcel being used as an orchard and the rest pasture; by the 1980s, several structures were built in the southwest, which appear to be a residence. The Jamul Indian Village shows the addition of several residences over the years; all structures were torn down and removed circa 2007. No visual clues as to any possible recognized environmental conditions were found.

4.4.3. Fire Insurance (Sanborn Company) Maps

Fire insurance maps are historical city and building layout maps produced for private fire insurance companies (primarily by the former Sanborn Company). These historical city maps can indicate the presence of structures on, or uses of, properties at specified dates. EDR now owns the Sanborn Company, and provides any available fire insurance maps for the target address. EDR's Sanborn report indicated that there was no coverage of the Study Area by Sanborn maps (Appendix 15.3).

4.4.4. City Directories

City directories have been published for cities and towns across the US since the 1700s. Originally a list of residents, the city directory developed into a tool for locating individuals and businesses in a particular urban or suburban area. Current directories are generally divided into three sections: a business index, a list of resident names and addresses, and a street index. With each address, the directory lists the name of the resident or, if a business is operated from this address, the name and type of business. While city directory coverage is comprehensive for large cities, it may be incomplete or unavailable for small towns and unincorporated, rural areas. The target address was the 14000 to 15000 block of Campo Road (SR-94); the EDR City Directory report is presented in Appendix 15.3. No relevant information was found pertaining to this address range other than the following:

- Year 2005 Haines Criss-Cross Directory - Jamul Tribal Hall at 14191 Campo Road and Fire Station Dulzura at 14145 Campo Road
- Year 1990 Haines Criss-Cross Directory – residences at 14135 and 14136 Campo Road

4.5. HISTORICAL USE INFORMATION ON ADJOINING PROPERTIES

No additional relevant information was found. Other historical use information on adjoining properties is summarized in other sections of this report.

5. SITE RECONNAISSANCE

The objective of the site reconnaissance is to obtain information indicating the likelihood of identifying recognized environmental conditions in connection with the property.

5.1. METHODOLOGY AND LIMITING CONDITIONS

The site visit is limited to visual and/or physical observation of the exterior and interior of the Property and its improvements, the past and current uses of the Property and adjoining properties, and the condition of the Property. The site visit evaluated the Property and adjoining properties for potential hazardous materials/waste and petroleum product use, storage, disposal, or accidental release, including the following: presence of tank and drum storage; mechanical or electrical equipment likely to contain liquids; evidence of soil or pavement staining or stressed vegetation; ponds, pits, lagoons, or sumps; suspicious odors; fill and depressions; or any other condition indicative of potential contamination. The site visit did not evaluate the presence of asbestos-containing materials, radon, lead-based paint, mold, indoor air quality, or structural defects, or other non-scope items.

In 2007, 2009, 2010, 2011 and most recently, May 15, 2013, registered environmental assessor G.O. Graening performed site reconnaissances of the Study Area. All accessible portions of the Study Area were observed by a pedestrian survey; adjoining properties were observed primarily by binocular or windshield (automobile) survey. Photographic documentation (Appendix 15.4) accompanies the following summary of the site reconnaissance.

5.2. EXTERIOR OBSERVATIONS

The Study Area and its improvements are generally well kept and litter free. The following text discusses focus areas of the site reconnaissance.

5.2.1. Stained Soil / Distressed Vegetation / Odors

No stained soil, distressed vegetation, or unusual odors was noted.

5.2.2. Roads

Roads within the Study Area are unimproved dirt roads or paved with asphalt or concrete, and show no suspicious staining.

5.2.3. Wells / Potable Water Supply

Regionally, potable water is supplied by private groundwater wells or by the municipal water district. No water wells were visible on the Study Area other than 2 on the 10-acre parcel (see following photo).



Groundwater pump and appurtenances on the 10-acre parcel

5.2.4.Sewage Disposal System

Historical residences located on Jamul Indian Village were serviced by septic systems/leachfields; most current residences are now served by the municipal sanitary sewer system.

5.2.5.Storage Tanks, Containers, or Drums

No storage tanks or drum storage was noted on the Study Area or adjoining properties during the site reconnaissance. There is no municipal subterranean natural gas utility service to the JIV or the surrounding area. Residences in the vicinity use individual propane storage tanks, serviced by private propane distribution companies. Historical residences on the Jamul Indian Village used such propane tanks

It is beyond the scope of this assessment to open any container.

5.2.6.Hazardous Substances and Petroleum Products

No hazardous substances or petroleum product usage or storage was noted within the Study Area or adjoining properties during the site reconnaissance.

No petroleum product usage or storage was noted on the Study Area or adjoining properties during the site reconnaissance. The historical fire station that was located on the 4-acre parcel used 2 fuel USTs until 1986, then switched to 2 ASTs; these were removed when the fire station was relocated across Highway 94 circa 2006-2007. No staining of the concrete pads or surrounding pavement was evident during the site reconnaissance.

Small quantities of potentially hazardous materials such as cleaning supplies, landscape maintenance chemicals, and vehicle maintenance chemicals are associated with residences in the vicinity of the Study Area.



Concrete pad that housed the Fire Station's diesel ASTs on the 4-acre parcel.

5.2.7. Electrical or Mechanical Equipment Likely to Contain Fluids

Polychlorinated biphenyls, or PCBs, were commonly used historically in electrical equipment such as transformers, fluorescent lamp ballasts, and capacitors. According to United States EPA regulation 40 CFR, Part 761, there are three categories for classifying such equipment: <50 ppm of PCBs is considered "Non-PCB"; between 50 and 500 ppm is considered "PCB-Contaminated"; and >500 ppm is considered "PCB-Containing". Pursuant to 15 U.S.C. 2605(e)(2)(A), the manufacture, process, or distribution in commerce or use of any polychlorinated biphenyl in any manner other than in a totally enclosed manner was prohibited after January 1, 1977.

Electricity is supplied to residences in the vicinity by the San Diego Gas and Electric Company via a single 12 kV above-ground transmission line running along SR-94. Pacific Bell provides telecommunications to the vicinity via above-ground lines along SR-94; these utility poles also carry cable television by Cox communications. No poly-chlorinated biphenyl (PCB)-containing equipment (electric or hydraulic) was observed during the site reconnaissance. Pole-mounted transformers were observed in the vicinity, but all appear to be modern and non-leaking.

5.2.8. Pits / Ponds / Lagoons

No pits, ponds, or lagoons were observed during the site reconnaissance.

5.2.9. Storm Water / Pools of Liquid

No municipal stormwater facilities were noted on the Study Area or on adjacent properties, except for road culverts that direct water to the nearest natural channels such as Willow Creek.

5.2.10. Solid Waste

Companies such as Jones Disposal Company and Waste Management Inc. provide solid waste collection for the region, and the collected waste is hauled to the Otay landfill and the Sycamore Sanitary landfill. No municipal solid waste service was noted for the Study Area. Some solid waste has been dumped off the edge of the Campo Road at various places along the Study Area in an unauthorized manner. Most of the

visible material consists of household waste. The largest items dumped onto the Study Area are automobile tires and household appliances. These items are considered a nuisance, but not a recognized environmental condition.

5.3. INTERIOR OBSERVATIONS

No buildings exist on the 4-acre parcel, 10-acre parcel, or the 87-acre parcel. Two pre-fabricated buildings (trailer-mounted) are located on the Jamul Indian Village, used as administrative office space. The interiors were previously viewed and no hazardous materials use or storage was noted.

5.4. LIMITATIONS

There were no limitations that affected the conclusions of this assessment.

6. INTERVIEWS

The ASTM explains that, "*The objective of interviews is to obtain information indicating the likelihood of identifying recognized environmental conditions in connection with the property*" (page 16, ASTM, 2013). The following text summarizes interviews performed and questionnaires answered.

On May 15, 2013, Dr. Graening met with Caltrans staff. Caltrans staff did not disclose any environmental conditions or provide any documentation of the Study Area.

The Tribe provided information about the Study Area in other formats in previous assessments.

7. FINDINGS

The Study Area is located in a rural area and has historical development of rangeland, roadways, residences, tribal administrative buildings, an orchard, and a fire station. The only known historical usage of hazardous materials or petroleum products was that that was associated with the fueling station at the fire station, which was a permitted facility that was regularly inspected by the County.

7.1. RATIONALE FOR DETERMINATION OF SIGNIFICANT FINDINGS

Offsite properties identified in the vicinity of the Property were evaluated to determine if they are likely to have adversely affected the Property. The criteria used to evaluate whether an offsite property pose potential environmental concerns to the Property include:

- Distance from the Property: Offsite properties within one-quarter mile of the Property were evaluated. The one-quarter-mile radius was used because it is unlikely a hazardous material released to the subsurface will migrate laterally within the soil for a significant distance, although in some cases, a hazardous material can migrate in groundwater in a generally downgradient direction for distances greater than one-quarter mile.
- Expected depth and direction of groundwater and surface water flow: The identification of a site as potentially upgradient or downgradient is based on the expected direction of groundwater flow determined by site-specific measurement, where available, or inferred from the regional topography.
- The presence of documented contaminant releases at the identified sites.
- The media that the documented contaminant releases affected (i.e., soil and/or groundwater). For the evaluation of potential environmental contamination in the Property, offsite properties with releases to soil only are assumed to pose no significant impact on the Property, as the contaminants are unlikely to migrate towards the Property.

Based on the review and evaluation of information available in the environmental databases and regulatory agency files, no adverse environmental effect is expected because the identified vicinity sites are in assumed down-gradient or cross-gradient locations, have obtained case closure, were contained at the

ground surface, or releases to the subsurface affected soil only, in which case the contaminants are unlikely to migrate towards the Property in groundwater. In addition, offsite properties located further than one-quarter mile from the study are not expected to adversely affect the Property conditions, as it is unlikely a hazardous material released to the subsurface will migrate laterally within the soil for a significant distance, although a hazardous material can migrate in groundwater in a generally downgradient direction.

It should be noted that Leaking Underground Storage Tank and DTSC EnviroStor sites closed by the RWQCB or local agencies prior to April 1, 2008, would not necessarily have been closed based on a risk assessment that considered volatile organic compounds and the vapor intrusion pathway. Assembly Bill 422, which now requires such a risk assessment, did not take effect until January 1, 2008. Evaluation of the vapor intrusion pathway is not included in the scope of this hazardous materials/wastes study.

7.2. DE MINIMIS ENVIRONMENTAL CONDITIONS

De minimis environmental conditions are conditions that are not believed to present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies (ASTM, 2013). One minimal, or *de minimis*, environmental condition exists pursuant to the ASTM standard:

- the Study Area has been subject to illegal dumping of residential garbage. Most of the visible material consists of household trash and abandoned automobile parts and household appliances. Note that both the California Integrated Waste Management Board (CalRecycle) and the Upper San Luis Rey Community Services District are funding a project to remove such nuisance solid waste and prevent future illicit dumping.

7.3. HISTORICAL RECOGNIZED ENVIRONMENTAL CONDITIONS

ASTM (2013) defines a historical recognized condition as

“...an environmental condition which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently. The final decision rests with the environmental professional and will be influenced by the current impact of the historical recognized environmental condition on the property. If a past release of any hazardous substances or petroleum products has occurred in connection with the property and has been remediated, with such remediation accepted by the responsible regulatory agency (for example, as evidenced by the issuance of a no further action letter or equivalent), this condition shall be considered an historical recognized environmental condition.” (p. 5, ASTM 2013)

No historical recognized environmental conditions were found in connection with the Study Area pursuant to the ASTM Practice E 1527-13.

7.4. KNOWN OR SUSPECT RECOGNIZED ENVIRONMENTAL CONDITIONS

No recognized environmental conditions were found in connection with the Study Area pursuant to the ASTM Practice E 1527-13.

8. OPINION AND RECOMMENDATION

8.1. IMPACT OF ENVIRONMENTAL CONDITIONS ON PROPERTY

It is Natural Investigations Co.’s opinion that there are no current recognized environmental conditions, in connection with the Study Area pursuant to the ASTM Practice E 1527-13. Records review, site reconnaissance, and interviews failed to identify any current environmental conditions in connection with the Study Area.

8.2. ADDITIONAL INVESTIGATION

It is Natural Investigations Co.'s opinion that there are no historical or current recognized environmental conditions in connection with the Study Area pursuant to the ASTM Practice E 1527-13. Records review, database searches, or interviews failed to identify any environmental conditions in connection with the Study Area. No significant data gaps or data failures were identified that affect the ability of the Environmental Professional to identify recognized environmental conditions. There are no unusual circumstances where greater certainty is required regarding recognized environmental conditions. Therefore, no additional assessment is recommended at this time by Natural Investigations Co.

Although the ASTM standard practice for Phase I ESA's considers lead paint an out-of-scope subject (ASTM, 2013), California Department of Transportation (Caltrans) requested a discussion of the potential hazard of lead in construction/demolition materials for this project.

8.2.1. Potential Hazard of Lead in Construction/Demolition Materials

8.2.1.1. *Potential Lead Soil Impacts "Earth Material Containing Lead"*

Leaded gasoline was used as a vehicle fuel in the USA from the 1920s through the 1980s. Although lead is no longer used in gasoline formulations, historical lead emissions from automobiles are a recognized source of contamination in soils along heavily-used roadways (i.e., aerially deposited lead or ADL). Thus, surface and near-surface soils along such roadways have the potential to contain elevated concentrations of lead. Ongoing testing by Caltrans throughout California has indicated that ADL exists along major freeway routes. At sites where soil has not been disturbed, the ADL is generally limited to the upper 2 feet of soil within unpaved shoulder and median areas.

Implementation of the project may require the excavation and export of soils from the project area; soil within, and adjacent to, the Caltrans rights-of-way usually contain ADL. It is not known whether the level of lead at the project area is at a hazardous level. Prior to construction ADL levels must be determined in order to handle the soil appropriately. Caltrans has a variance with the DTSC that will allow the Department to keep soil with hazardous levels of ADL within the right-of-way depending on the level of contamination that is found.

8.2.1.2. *Potential Lead-based Traffic Stripe Paint Impacts*

Current Caltrans paint specifications require paints to have lead concentrations less than 20 mg/kg. Old non-yellow paints (e.g., white, blue, black, etc.) had higher concentrations of lead, but not high enough for removed paint to be classified as a hazardous waste. Residue from the removal of these paints is a non-hazardous waste. Yellow traffic paint used prior to 1999 contained high concentrations of lead. Application of yellow thermoplastic material containing high concentrations of lead was phased out during 2004 to 2006. The lead concentrations in these paints and thermoplastics are high enough to make these materials hazardous wastes when they are removed.

Implementation of the project may require the removal of traffic stripe paint from the underlying asphalt concrete by grinding or sand blasting, which would create a paint waste stream. All traffic striping and traffic marking paints contain lead, but it is not known whether it is at hazardous levels or not. According to Caltrans' requirements, this paint waste must be sampled and analyzed prior to disposal. Disposal of removed traffic stripe paint materials is also dependent on the method utilized to remove these materials (i.e. focused stripe removal vs. pavement grinding).

8.2.1.3. *Recommended Mitigation*

According to Caltrans' requirements, no soil shall be disturbed or exported from the State right-of-way project area before an ADL study is completed. No paint striping shall be removed before a lead compliance plan is implemented. Cal/OSHA and Caltrans require a lead compliance plan when lead is

known to be present. The potential presence of elevated lead concentrations requires sampling and analytical testing of any exported soil and any traffic paint materials to determine appropriate health and safety procedures and proper management and disposal practices. A project-specific Lead Compliance Plan will be required and must be prepared by a Certified Industrial Hygienist and properly implemented by the contractor. The requirements for the lead compliance plan can be found in the Caltrans Standard Specifications in Section 7-1.02K(6)(j)(ii) and CCR Title 8, Section 1532.1. Note that just one lead compliance plan that addresses all types of lead exposures on the project is to be prepared.

As specified in this plan, lead-containing materials must be sampled and analyzed prior to disposal. If the analytical results show that lead levels are below the regulated hazardous level the materials may be disposed with other construction and demolition debris. If the analytical results show that lead levels are above the regulated hazardous level, the waste must be transported under manifest to a Class I landfill appropriately permitted to receive the material.

The project-specific Lead Compliance Plan is intended, among other things, to minimize worker exposure to lead. The plan should include protocols for environmental and personnel monitoring, requirements for the use of personal protective equipment, and other health and safety protocols and procedures for the handling of lead-containing materials. A dust control plan and health and safety plan should also be prepared and implemented to minimize worker exposure to lead and any other hazardous materials.

8.2.2. Other Potential Hazards

Two common hazards should also be noted: portions of the Study Area near the Willow Creek channel may be located within a 100-year or 500-year floodplain, and the region is prone to flash floods; and the Study Area contains dense, dry vegetation that may fuel wildfire, and the region is located within an area of moderate to high level of fire hazard.

9. CONCLUSIONS

Natural Investigations Company has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 of the Study Area: a combined access road study corridor involving portions of 3 parcels—an 87-acre parcel (APN 597-060-05-00), 4-acre parcel (APN 597-060-04-00), and a 10-acre parcel (APN 597-042-13-00)—as well as the affected portions of the CalTrans right-of-way corridor of State Route 94 from 1/4-mile north of Melody Road to 1/2 mile south of the Jamul Indian Village, Melody Road, and the frontage and driveways of other affected parcels. Any exceptions to, or deletions from, this practice are described in Section 10 of this report. This assessment has revealed that there are no historic recognized environmental conditions and no current recognized environmental conditions in connection with the Study Area pursuant to the ASTM Practice E 1527-13. No further site investigation is recommended.

9.1. DATA FAILURE OR OTHER DATA GAPS

ASTM (2013) defines data failure as the failure to achieve the historical research objectives even after reviewing the standard historical sources that are reasonably ascertainable and likely to be useful. Data failure is one type of data gap. ASTM (2013) defines a data gap as a lack, of or inability to obtain, information required by this practice despite good faith efforts by the environmental professional to gather such information. Data gaps may result from incompleteness in any of the activities required by this practice, including, but not limited to site reconnaissance (for example, an inability to conduct the site visit), and interviews (for example, an inability to interview the key site manager, regulatory officials, etc.)

The available historical USGS quadrangle maps and aerial photography were too coarse in resolution to discern any specific land uses or structures on the Property or adjacent properties, and Sanborn fire insurance maps did not cover the Property. These constitute data failures. However, a combination of

other historical data sources was available such that no significant data gap existed, and the historical research objectives were achieved.

10. DEVIATIONS

There were no deletions or deviations from the standard practice.

11. ADDITIONAL SERVICES

No additional services beyond the scope of the ASTM Standard 1527-13 were conducted as part of this assessment.

There may be environmental issues or conditions at a property that parties may wish to assess in connection with commercial real estate that are outside the scope of this practice. No implication is intended as to the relative importance of inquiry into such non-scope considerations, and this list of non-scope considerations is not intended to be all-inclusive: asbestos-containing building materials, radon, lead-based paint, lead in drinking water, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, biological agents, and mold.

Phase I ESAs are non-comprehensive by nature and are unlikely to identify all environmental problems or eliminate all risk. Natural Investigations Company offers a range of investigative and consulting services to suit the needs of our clients, including more quantitative investigations. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help the User understand and better manage risks associated with their property. Since such detailed services involve greater expense and time, we ask that our clients participate in the identification of the level of service that will provide them with what they consider to be an acceptable level of risk. Please contact the signatory of this report if you would like to discuss the issue of risk further. Land use, site conditions, and other factors will change over time. This report should not be relied upon after 180 days from the date of issuance, unless additional services are performed as defined in Section 4.7 of ASTM E 1527-13.

12. REFERENCES

American Society for Testing and Materials. 2013. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. Designation E 1527-13. West Conshohocken, Pennsylvania. 35 pp.

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Natural Investigations Company. 2012. Phase 1 Environmental Site Assessment for the Jamul Gaming Project and Access Project, San Diego Co., California. Prepared for Environmental Data Systems Inc. & Jamul Indian Village. 27 pp. + appendices.

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13. SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

As required by 40 CFR 312.21(d), this report shall include the following statements of the environmental professional responsible for conducting the Phase I ESA and preparation of the report (page 21, ASTM, 2013):

I declare that, to the best of my professional knowledge, I meet the definition of 'Environmental Professional' as defined in §312.10 of 40 CFR.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



G. O. Graening, PhD, MSE
Registered Environmental Assessor, Number 08060



14. QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

Dr. Gary O. Graening was certified by California Department of Toxic Substances Control as a Registered Environmental Assessor I (registration # 08060,) from 2005 to 2012 (when DTSC retired the certification program). Dr. Graening holds a PhD in Biological Sciences and a Master of Science in Engineering. Dr. Graening has over 13 years of experience in environmental research and site assessment, including preparation of program-level Phase I ESAs, limited Phase II investigations, as well as environmental impact assessments for National Environmental Policy Act compliance and California Environmental Quality Act compliance. Dr. Graening has completed the 40-hour OSHA Hazardous Waste Operations and Emergency Response certification (with 8-hour annual refresher courses). Dr. Graening's full résumé, and the Company's statement of qualifications, is available on the Internet at the Company's website: www.naturalinvestigations.com.

15. APPENDICES

All appendices are presented as electronic files on the attached compact disc.

15.1.USER-PROVIDED INFORMATION

15.1.1. Title Reports

15.1.2. Previous Phase I ESAs

15.2.REGULATORY RECORDS DOCUMENTATION

15.2.1. EDR Radius Map Reports

15.2.2. County / CUPA Records

15.3.HISTORICAL RESEARCH DOCUMENTATION

15.3.1. Historical Topographic Maps

15.3.2. Historical Aerial Photographs

15.3.3. Fire Insurance (Sanborn Company) Maps

15.3.4. City Directories

15.4.SITE RECONNAISSANCE PHOTOGRAPHY

15.5.INTERVIEW DOCUMENTATION



Jamul Indian Village Access

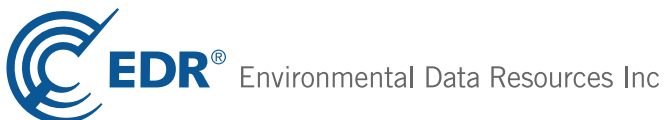
14100 Campo Road

Jamul, CA 91935

Inquiry Number: 3580276.1s

April 18, 2013

EDR Summary Radius Map Report



440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

14100 CAMPO ROAD
JAMUL, CA 91935

COORDINATES

| | |
|--------------------------------|-------------------------------|
| Latitude (North): | 32.7054000 - 32° 42' 19.44" |
| Longitude (West): | 116.8697000 - 116° 52' 10.92" |
| Universal Transverse Mercator: | Zone 11 |
| UTM X (Meters): | 512212.7 |
| UTM Y (Meters): | 3618445.8 |
| Elevation: | 961 ft. above sea level |

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

| | |
|------------------|-------------------------|
| Target Property: | TP |
| Source: | USGS 7.5 min quad index |
| Target Property: | W |
| Source: | USGS 7.5 min quad index |

AERIAL PHOTOGRAPHY IN THIS REPORT

| | |
|-------------|------|
| Photo Year: | 2010 |
| Source: | USDA |

MAPPED SITES SUMMARY

Target Property Address:
14100 CAMPO ROAD
JAMUL, CA 91935

Click on Map ID to see full detail.

| MAP ID | SITE NAME | ADDRESS | DATABASE ACRONYMS | RELATIVE ELEVATION | DIST (ft.) DIRECTION |
|--------|----------------------|----------------------|-------------------|--------------------|----------------------|
| 1 | PEACEFUL VALLEY RENC | 14026 PEACEFUL VALLE | SAN DIEGO CO. SAM | Lower | 536, East |

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property. Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

SAN DIEGO CO. SAM: A review of the SAN DIEGO CO. SAM list, as provided by EDR, and dated 03/23/2010 has revealed that there is 1 SAN DIEGO CO. SAM site within approximately 0.5 miles of the target property.

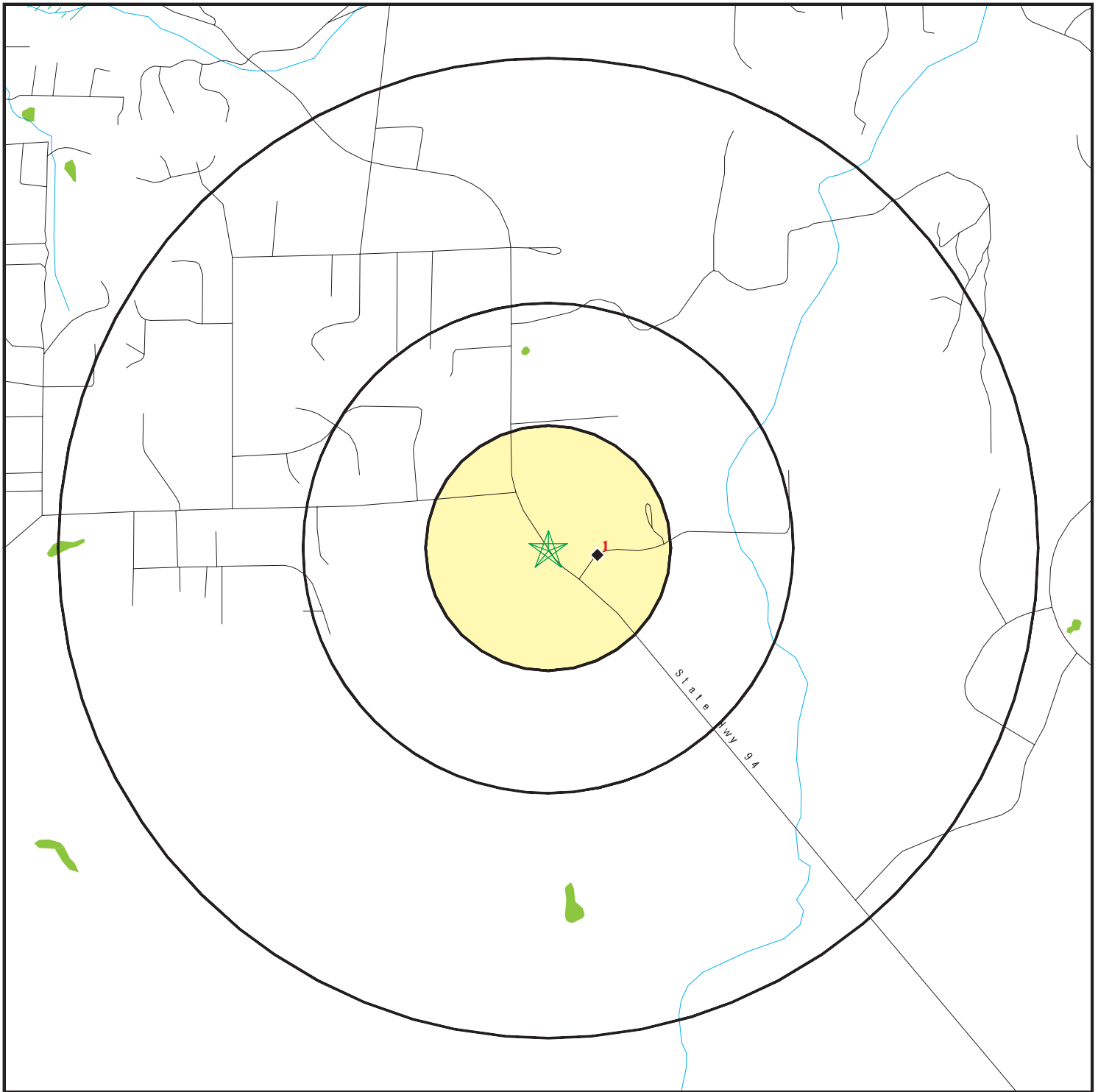
| <u>Lower Elevation</u> | <u>Address</u> | <u>Direction / Distance</u> | <u>Map ID</u> | <u>Page</u> |
|------------------------|----------------------|-----------------------------|---------------|-------------|
| PEACEFUL VALLEY RENC | 14026 PEACEFUL VALLE | E 0 - 1/8 (0.102 mi.) | 1 | 8 |

Count: 6 records.

ORPHAN SUMMARY

| City | EDR ID | Site Name | Site Address | Zip | Database(s) |
|------------------|------------|------------------------|-------------------------------|-------|-------------|
| JAMUL | 1004439457 | JAMUL CHRISTIAN SCHOOL | P.O. BOX 74 | 91935 | FINDS |
| JAMUL | S105155612 | JAMUL BURNSITE | JAMUL DR | | SWF/LF |
| JAMUL | 1006829595 | JAMUL BURNSITE | JAMUL DR. | 91935 | FINDS |
| JAMUL | S109521465 | PEACEFUL VALLEY RANCH | ZERO PEACEFUL VALLEY RNCH & H | 91935 | SLIC |
| SAN DIEGO COUNTY | M300003197 | MUHT-HEI, INC. | CAMPO MATERIALS PIT | | US MINES |
| SAN DIEGO COUNTY | 2011975012 | MARINA VILLAGE | MARINA VILLAGE | | ERNS |

OVERVIEW MAP - 3580276.1s



★ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

⚙ Manufactured Gas Plants

🏠 National Priority List Sites

🏠 Dept. Defense Sites

🏠 Indian Reservations BIA

🛢 Oil & Gas pipelines from USGS

🌊 100-year flood zone

🌊 500-year flood zone

🌿 National Wetland Inventory

🏠 Areas of Concern

0 1/4 1/2 1 Miles

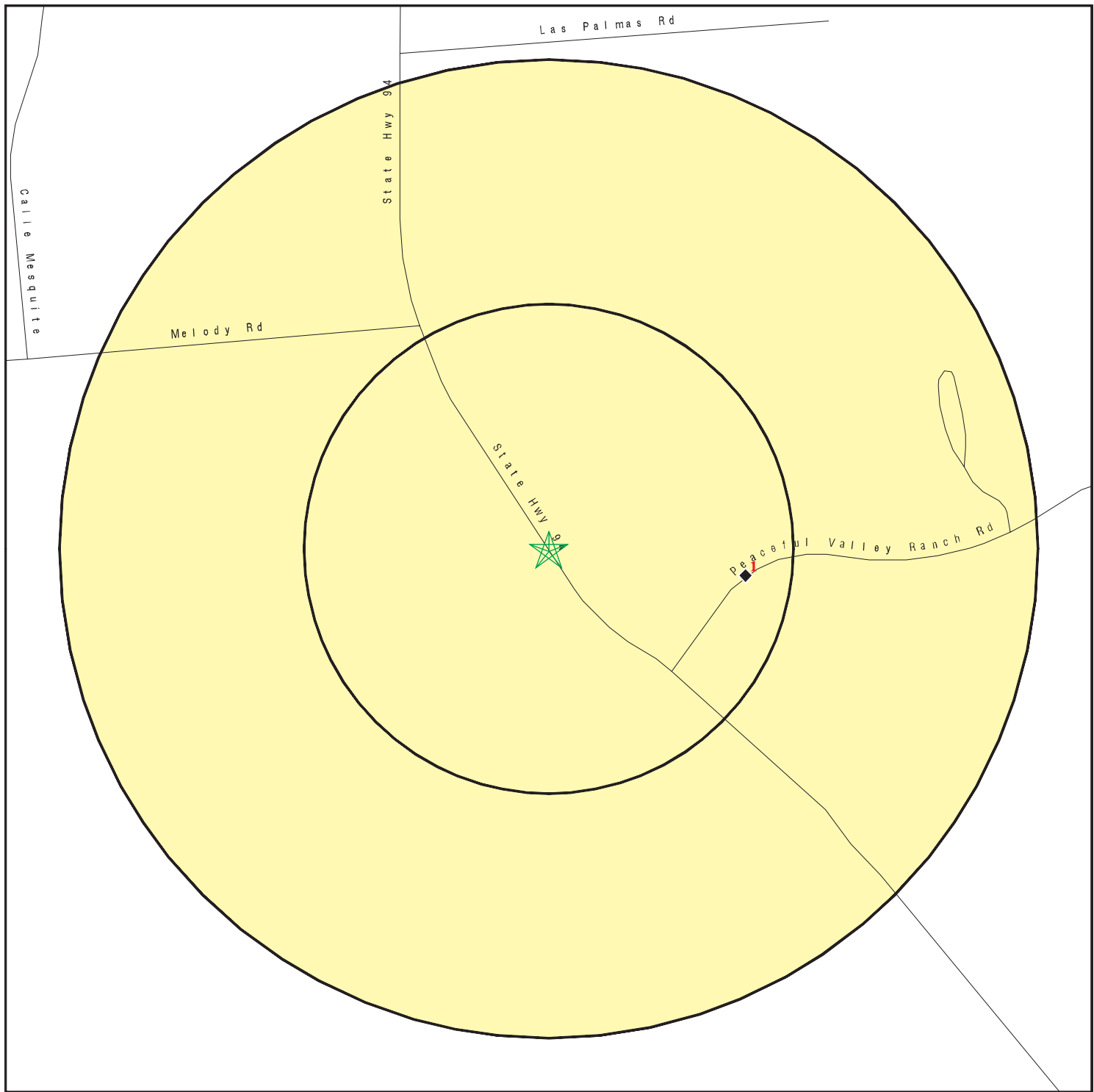


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Jamul Indian Village Access
ADDRESS: 14100 Campo Road
Jamul CA 91935
LAT/LONG: 32.7054 / 116.8697

CLIENT: Natural Investigations
CONTACT: G.O. Graening
INQUIRY #: 3580276.1s
DATE: April 18, 2013 12:27 pm

DETAIL MAP - 3580276.1s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🚒 National Priority List Sites
- 🚒 Dept. Defense Sites

- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- Areas of Concern



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Jamul Indian Village Access
 ADDRESS: 14100 Campo Road
 Jamul CA 91935
 LAT/LONG: 32.7054 / 116.8697

CLIENT: Natural Investigations
 CONTACT: G.O. Graening
 INQUIRY #: 3580276.1s
 DATE: April 18, 2013 12:29 pm

MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|--|-------------------------------|--------------------|-------|-----------|-----------|---------|-----|------------------|
| STANDARD ENVIRONMENTAL RECORDS | | | | | | | | |
| <i>Federal NPL site list</i> | | | | | | | | |
| NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| Proposed NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| NPL LIENS | TP | | NR | NR | NR | NR | NR | 0 |
| <i>Federal Delisted NPL site list</i> | | | | | | | | |
| Delisted NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| <i>Federal CERCLIS list</i> | | | | | | | | |
| CERCLIS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| FEDERAL FACILITY | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| <i>Federal CERCLIS NFRAP site List</i> | | | | | | | | |
| CERC-NFRAP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| <i>Federal RCRA CORRACTS facilities list</i> | | | | | | | | |
| CORRACTS | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| <i>Federal RCRA non-CORRACTS TSD facilities list</i> | | | | | | | | |
| RCRA-TSDF | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| <i>Federal RCRA generators list</i> | | | | | | | | |
| RCRA-LQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| RCRA-SQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| RCRA-CESQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| <i>Federal institutional controls / engineering controls registries</i> | | | | | | | | |
| US ENG CONTROLS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US INST CONTROL | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| LUCIS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| <i>Federal ERNS list</i> | | | | | | | | |
| ERNS | TP | | NR | NR | NR | NR | NR | 0 |
| <i>State- and tribal - equivalent NPL</i> | | | | | | | | |
| RESPONSE | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| <i>State- and tribal - equivalent CERCLIS</i> | | | | | | | | |
| ENVIROSTOR | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| <i>State and tribal landfill and/or solid waste disposal site lists</i> | | | | | | | | |
| SWF/LF | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| <i>State and tribal leaking storage tank lists</i> | | | | | | | | |
| LUST | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |

MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|-------------------------|-----------------|-------|-----------|-----------|---------|-----|---------------|
| SLIC | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| SAN DIEGO CO. SAM | 0.500 | | 1 | 0 | 0 | NR | NR | 1 |
| INDIAN LUST | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| State and tribal registered storage tank lists | | | | | | | | |
| UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| AST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| INDIAN UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| FEMA UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| State and tribal voluntary cleanup sites | | | | | | | | |
| VCP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| INDIAN VCP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ADDITIONAL ENVIRONMENTAL RECORDS | | | | | | | | |
| Local Brownfield lists | | | | | | | | |
| US BROWNFIELDS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| Local Lists of Landfill / Solid Waste Disposal Sites | | | | | | | | |
| ODI | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| DEBRIS REGION 9 | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| WMUDS/SWAT | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| SWRCY | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| HAULERS | TP | | NR | NR | NR | NR | NR | 0 |
| INDIAN ODI | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| Local Lists of Hazardous waste / Contaminated Sites | | | | | | | | |
| US CDL | TP | | NR | NR | NR | NR | NR | 0 |
| HIST Cal-Sites | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| SCH | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| Toxic Pits | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| CDL | TP | | NR | NR | NR | NR | NR | 0 |
| San Diego Co. HMMD | TP | | NR | NR | NR | NR | NR | 0 |
| US HIST CDL | TP | | NR | NR | NR | NR | NR | 0 |
| Local Lists of Registered Storage Tanks | | | | | | | | |
| CA FID UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| HIST UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| SWEEPS UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| Local Land Records | | | | | | | | |
| LIENS 2 | TP | | NR | NR | NR | NR | NR | 0 |
| LIENS | TP | | NR | NR | NR | NR | NR | 0 |
| DEED | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| Records of Emergency Release Reports | | | | | | | | |
| HMIRS | TP | | NR | NR | NR | NR | NR | 0 |

MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|------------------------------------|-------------------------|-----------------|-------|-----------|-----------|---------|-----|---------------|
| CHMIRS | TP | | NR | NR | NR | NR | NR | 0 |
| LDS | TP | | NR | NR | NR | NR | NR | 0 |
| MCS | TP | | NR | NR | NR | NR | NR | 0 |
| Other Ascertainable Records | | | | | | | | |
| RCRA NonGen / NLR | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| DOT OPS | TP | | NR | NR | NR | NR | NR | 0 |
| DOD | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| FUDS | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| CONSENT | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ROD | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| UMTRA | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US MINES | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| TRIS | TP | | NR | NR | NR | NR | NR | 0 |
| TSCA | TP | | NR | NR | NR | NR | NR | 0 |
| FTTS | TP | | NR | NR | NR | NR | NR | 0 |
| HIST FTTS | TP | | NR | NR | NR | NR | NR | 0 |
| SSTS | TP | | NR | NR | NR | NR | NR | 0 |
| ICIS | TP | | NR | NR | NR | NR | NR | 0 |
| PADS | TP | | NR | NR | NR | NR | NR | 0 |
| MLTS | TP | | NR | NR | NR | NR | NR | 0 |
| RADINFO | TP | | NR | NR | NR | NR | NR | 0 |
| FINDS | TP | | NR | NR | NR | NR | NR | 0 |
| RAATS | TP | | NR | NR | NR | NR | NR | 0 |
| RMP | TP | | NR | NR | NR | NR | NR | 0 |
| CA BOND EXP. PLAN | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| UIC | TP | | NR | NR | NR | NR | NR | 0 |
| NPDES | TP | | NR | NR | NR | NR | NR | 0 |
| Cortese | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| HIST CORTESE | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| CUPA Listings | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| Notify 65 | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| DRYCLEANERS | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| WIP | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ENF | TP | | NR | NR | NR | NR | NR | 0 |
| HAZNET | TP | | NR | NR | NR | NR | NR | 0 |
| EMI | TP | | NR | NR | NR | NR | NR | 0 |
| INDIAN RESERV | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| SCRD DRYCLEANERS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| MWMP | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| COAL ASH DOE | TP | | NR | NR | NR | NR | NR | 0 |
| COAL ASH EPA | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| HWT | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| HWP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| Financial Assurance | TP | | NR | NR | NR | NR | NR | 0 |
| 2020 COR ACTION | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| US AIRS | TP | | NR | NR | NR | NR | NR | 0 |
| PRP | TP | | NR | NR | NR | NR | NR | 0 |
| WDS | TP | | NR | NR | NR | NR | NR | 0 |
| EPA WATCH LIST | TP | | NR | NR | NR | NR | NR | 0 |
| US FIN ASSUR | TP | | NR | NR | NR | NR | NR | 0 |

MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|-------------------------|-------------------------------|--------------------|---------|-----------|-----------|----------|----------|------------------|
| PCB TRANSFORMER PROC | TP 0.500 | | NR 0 | NR 0 | NR 0 | NR NR | NR NR | 0 0 |

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

| | | | | | | | | |
|-----------------------|-------|--|---|---|----|----|----|---|
| EDR MGP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| EDR US Hist Auto Stat | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| EDR US Hist Cleaners | 0.250 | | 0 | 0 | NR | NR | NR | 0 |

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

1
East
< 1/8
0.102 mi.
536 ft.

PEACEFUL VALLEY RENCH
14026 PEACEFUL VALLEY RANCH RD
JAMUL, CA 91935

SAN DIEGO CO. SAM

S109118211
N/A

Relative:
Lower

[Click here for full text details](#)

SAN DIEGO CO. SAM

Facility Status: Preliminary Assessment

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

| St | Acronym | Full Name | Government Agency | Gov Date | Arvl. Date | Active Date |
|----|-----------------------|--|---|------------|------------|-------------|
| CA | AST | Aboveground Petroleum Storage Tank Facilities | State Water Resources Control Board | 08/01/2009 | 09/10/2009 | 10/01/2009 |
| CA | CA BOND EXP. PLAN | Bond Expenditure Plan | Department of Health Services | 01/01/1989 | 07/27/1994 | 08/02/1994 |
| CA | CA FID UST | Facility Inventory Database | California Environmental Protection Agency | 10/31/1994 | 09/05/1995 | 09/29/1995 |
| CA | CDL | Clandestine Drug Labs | Department of Toxic Substances Control | 06/30/2012 | 09/12/2012 | 10/03/2012 |
| CA | CHMIRS | California Hazardous Material Incident Report System | Office of Emergency Services | 12/06/2012 | 01/29/2013 | 03/19/2013 |
| CA | CORTESE | "Cortese" Hazardous Waste & Substances Sites List | CAL EPA/Office of Emergency Information | 01/02/2013 | 01/03/2013 | 02/22/2013 |
| CA | DEED | Deed Restriction Listing | Department of Toxic Substances Control | 03/11/2013 | 03/12/2013 | 03/25/2013 |
| CA | DRYCLEANERS | Cleaner Facilities | Department of Toxic Substance Control | 12/11/2012 | 12/12/2012 | 01/04/2013 |
| CA | EMI | Emissions Inventory Data | California Air Resources Board | 12/31/2008 | 09/29/2010 | 10/18/2010 |
| CA | ENF | Enforcement Action Listing | State Water Resources Control Board | 01/08/2013 | 01/29/2013 | 03/19/2013 |
| CA | ENVIROSTOR | EnviroStor Database | Department of Toxic Substances Control | 03/13/2013 | 03/14/2013 | 03/27/2013 |
| CA | Financial Assurance 1 | Financial Assurance Information Listing | Department of Toxic Substances Control | 03/01/2007 | 06/01/2007 | 06/29/2007 |
| CA | Financial Assurance 2 | Financial Assurance Information Listing | California Integrated Waste Management Board | 02/19/2013 | 02/20/2013 | 03/20/2013 |
| CA | HAULERS | Registered Waste Tire Haulers Listing | Integrated Waste Management Board | 03/13/2013 | 03/14/2013 | 03/27/2013 |
| CA | HAZNET | Facility and Manifest Data | California Environmental Protection Agency | 12/31/2011 | 06/22/2012 | 07/06/2012 |
| CA | HIST CAL-SITES | Calsites Database | Department of Toxic Substance Control | 08/08/2005 | 08/03/2006 | 08/24/2006 |
| CA | HIST CORTESE | Hazardous Waste & Substance Site List | Department of Toxic Substances Control | 04/01/2001 | 01/22/2009 | 04/08/2009 |
| CA | HIST UST | Hazardous Substance Storage Container Database | State Water Resources Control Board | 10/15/1990 | 01/25/1991 | 02/12/1991 |
| CA | HWP | EnviroStor Permitted Facilities Listing | Department of Toxic Substances Control | 02/25/2013 | 02/26/2013 | 03/25/2013 |
| CA | HWT | Registered Hazardous Waste Transporter Database | Department of Toxic Substances Control | 01/15/2013 | 01/15/2013 | 02/22/2013 |
| CA | LDS | Land Disposal Sites Listing | State Water Quality Control Board | 03/18/2013 | 03/19/2013 | 03/27/2013 |
| CA | LIENS | Environmental Liens Listing | Department of Toxic Substances Control | 03/15/2013 | 03/15/2013 | 03/27/2013 |
| CA | LUST | Geotracker's Leaking Underground Fuel Tank Report | State Water Resources Control Board | 03/18/2013 | 03/19/2013 | 03/27/2013 |
| CA | LUST REG 1 | Active Toxic Site Investigation | California Regional Water Quality Control Boa | 02/01/2001 | 02/28/2001 | 03/29/2001 |
| CA | LUST REG 2 | Fuel Leak List | California Regional Water Quality Control Boa | 09/30/2004 | 10/20/2004 | 11/19/2004 |
| CA | LUST REG 3 | Leaking Underground Storage Tank Database | California Regional Water Quality Control Boa | 05/19/2003 | 05/19/2003 | 06/02/2003 |
| CA | LUST REG 4 | Underground Storage Tank Leak List | California Regional Water Quality Control Boa | 09/07/2004 | 09/07/2004 | 10/12/2004 |
| CA | LUST REG 5 | Leaking Underground Storage Tank Database | California Regional Water Quality Control Boa | 07/01/2008 | 07/22/2008 | 07/31/2008 |
| CA | LUST REG 6L | Leaking Underground Storage Tank Case Listing | California Regional Water Quality Control Boa | 09/09/2003 | 09/10/2003 | 10/07/2003 |
| CA | LUST REG 6V | Leaking Underground Storage Tank Case Listing | California Regional Water Quality Control Boa | 06/07/2005 | 06/07/2005 | 06/29/2005 |
| CA | LUST REG 7 | Leaking Underground Storage Tank Case Listing | California Regional Water Quality Control Boa | 02/26/2004 | 02/26/2004 | 03/24/2004 |
| CA | LUST REG 8 | Leaking Underground Storage Tanks | California Regional Water Quality Control Boa | 02/14/2005 | 02/15/2005 | 03/28/2005 |
| CA | LUST REG 9 | Leaking Underground Storage Tank Report | California Regional Water Quality Control Boa | 03/01/2001 | 04/23/2001 | 05/21/2001 |
| CA | MCS | Military Cleanup Sites Listing | State Water Resources Control Board | 03/18/2013 | 03/19/2013 | 03/27/2013 |
| CA | MWMP | Medical Waste Management Program Listing | Department of Public Health | 03/06/2013 | 03/12/2013 | 03/25/2013 |
| CA | NOTIFY 65 | Proposition 65 Records | State Water Resources Control Board | 10/21/1993 | 11/01/1993 | 11/19/1993 |
| CA | NPDES | NPDES Permits Listing | State Water Resources Control Board | 02/18/2013 | 02/18/2013 | 03/20/2013 |
| CA | PROC | Certified Processors Database | Department of Conservation | 03/18/2013 | 03/19/2013 | 03/27/2013 |
| CA | RESPONSE | State Response Sites | Department of Toxic Substances Control | 03/13/2013 | 03/14/2013 | 03/27/2013 |
| CA | SCH | School Property Evaluation Program | Department of Toxic Substances Control | 03/13/2013 | 03/14/2013 | 03/27/2013 |
| CA | SLIC | Statewide SLIC Cases | State Water Resources Control Board | 03/18/2013 | 03/19/2013 | 03/27/2013 |
| CA | SLIC REG 1 | Active Toxic Site Investigations | California Regional Water Quality Control Boa | 04/03/2003 | 04/07/2003 | 04/25/2003 |
| CA | SLIC REG 2 | Spills, Leaks, Investigation & Cleanup Cost Recovery Listing | Regional Water Quality Control Board San Fran | 09/30/2004 | 10/20/2004 | 11/19/2004 |
| CA | SLIC REG 3 | Spills, Leaks, Investigation & Cleanup Cost Recovery Listing | California Regional Water Quality Control Boa | 05/18/2006 | 05/18/2006 | 06/15/2006 |
| CA | SLIC REG 4 | Spills, Leaks, Investigation & Cleanup Cost Recovery Listing | Region Water Quality Control Board Los Angele | 11/17/2004 | 11/18/2004 | 01/04/2005 |
| CA | SLIC REG 5 | Spills, Leaks, Investigation & Cleanup Cost Recovery Listing | Regional Water Quality Control Board Central | 04/01/2005 | 04/05/2005 | 04/21/2005 |
| CA | SLIC REG 6L | SLIC Sites | California Regional Water Quality Control Boa | 09/07/2004 | 09/07/2004 | 10/12/2004 |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

| St | Acronym | Full Name | Government Agency | Gov Date | Arvl. Date | Active Date |
|----|-----------------------|--|---|------------|------------|-------------|
| CA | SLIC REG 6V | Spills, Leaks, Investigation & Cleanup Cost Recovery Listing | Regional Water Quality Control Board, Victorv | 05/24/2005 | 05/25/2005 | 06/16/2005 |
| CA | SLIC REG 7 | SLIC List | California Regional Quality Control Board, Co | 11/24/2004 | 11/29/2004 | 01/04/2005 |
| CA | SLIC REG 8 | Spills, Leaks, Investigation & Cleanup Cost Recovery Listing | California Region Water Quality Control Board | 04/03/2008 | 04/03/2008 | 04/14/2008 |
| CA | SLIC REG 9 | Spills, Leaks, Investigation & Cleanup Cost Recovery Listing | California Regional Water Quality Control Boa | 09/10/2007 | 09/11/2007 | 09/28/2007 |
| CA | SWEEPS UST | SWEEPS UST Listing | State Water Resources Control Board | 06/01/1994 | 07/07/2005 | 08/11/2005 |
| CA | SWF/LF (SWIS) | Solid Waste Information System | Department of Resources Recycling and Recover | 02/18/2013 | 02/18/2013 | 03/20/2013 |
| CA | SWRCY | Recycler Database | Department of Conservation | 03/18/2013 | 03/19/2013 | 03/27/2013 |
| CA | TOXIC PITS | Toxic Pits Cleanup Act Sites | State Water Resources Control Board | 07/01/1995 | 08/30/1995 | 09/26/1995 |
| CA | UIC | UIC Listing | Deaprtment of Conservation | 03/05/2013 | 03/19/2013 | 03/27/2013 |
| CA | UST | Active UST Facilities | SWRCB | 03/18/2013 | 03/19/2013 | 04/18/2013 |
| CA | UST MENDOCINO | Mendocino County UST Database | Department of Public Health | 09/23/2009 | 09/23/2009 | 10/01/2009 |
| CA | VCP | Voluntary Cleanup Program Properties | Department of Toxic Substances Control | 03/13/2013 | 03/14/2013 | 03/27/2013 |
| CA | WDS | Waste Discharge System | State Water Resources Control Board | 06/19/2007 | 06/20/2007 | 06/29/2007 |
| CA | WIP | Well Investigation Program Case List | Los Angeles Water Quality Control Board | 07/03/2009 | 07/21/2009 | 08/03/2009 |
| CA | WMUDS/SWAT | Waste Management Unit Database | State Water Resources Control Board | 04/01/2000 | 04/10/2000 | 05/10/2000 |
| US | 2020 COR ACTION | 2020 Corrective Action Program List | Environmental Protection Agency | 11/11/2011 | 05/18/2012 | 05/25/2012 |
| US | BRS | Biennial Reporting System | EPA/NTIS | 12/31/2009 | 03/01/2011 | 05/02/2011 |
| US | CERCLIS | Comprehensive Environmental Response, Compensation, and Liab | EPA | 02/04/2013 | 03/01/2013 | 03/13/2013 |
| US | CERCLIS-NFRAP | CERCLIS No Further Remedial Action Planned | EPA | 02/05/2013 | 03/01/2013 | 03/13/2013 |
| US | COAL ASH DOE | Sleam-Electric Plan Operation Data | Department of Energy | 12/31/2005 | 08/07/2009 | 10/22/2009 |
| US | COAL ASH EPA | Coal Combustion Residues Surface Impoundments List | Environmental Protection Agency | 08/17/2010 | 01/03/2011 | 03/21/2011 |
| US | CONSENT | Superfund (CERCLA) Consent Decrees | Department of Justice, Consent Decree Library | 12/31/2011 | 01/15/2013 | 03/13/2013 |
| US | CORRACTS | Corrective Action Report | EPA | 02/12/2013 | 02/21/2013 | 02/27/2013 |
| US | DEBRIS REGION 9 | Torres Martinez Reservation Illegal Dump Site Locations | EPA, Region 9 | 01/12/2009 | 05/07/2009 | 09/21/2009 |
| US | DELISTED NPL | National Priority List Deletions | EPA | 02/01/2013 | 03/01/2013 | 03/13/2013 |
| US | DOD | Department of Defense Sites | USGS | 12/31/2005 | 11/10/2006 | 01/11/2007 |
| US | DOT OPS | Incident and Accident Data | Department of Transporation, Office of Pipeli | 07/31/2012 | 08/07/2012 | 09/18/2012 |
| US | EDR MGP | EDR Proprietary Manufactured Gas Plants | EDR, Inc. | | | |
| US | EDR US Hist Auto Stat | EDR Exclusive Historic Gas Stations | EDR, Inc. | | | |
| US | EDR US Hist Auto Stat | EDR Proprietary Historic Gas Stations - Cole | | | | |
| US | EDR US Hist Cleaners | EDR Proprietary Historic Dry Cleaners - Cole | | | | |
| US | EDR US Hist Cleaners | EDR Exclusive Historic Dry Cleaners | EDR, Inc. | | | |
| US | EPA WATCH LIST | EPA WATCH LIST | Environmental Protection Agency | 07/31/2012 | 08/13/2012 | 09/18/2012 |
| US | ERNS | Emergency Response Notification System | National Response Center, United States Coast | 12/31/2012 | 01/17/2013 | 02/15/2013 |
| US | FEDERAL FACILITY | Federal Facility Site Information listing | Environmental Protection Agency | 07/31/2012 | 10/09/2012 | 12/20/2012 |
| US | FEDLAND | Federal and Indian Lands | U.S. Geological Survey | 12/31/2005 | 02/06/2006 | 01/11/2007 |
| US | FEMA UST | Underground Storage Tank Listing | FEMA | 01/01/2010 | 02/16/2010 | 04/12/2010 |
| US | FINDS | Facility Index System/Facility Registry System | EPA | 10/23/2011 | 12/13/2011 | 03/01/2012 |
| US | FTTS | FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu | EPA/Office of Prevention, Pesticides and Toxi | 04/09/2009 | 04/16/2009 | 05/11/2009 |
| US | FTTS INSP | FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu | EPA | 04/09/2009 | 04/16/2009 | 05/11/2009 |
| US | FUDS | Formerly Used Defense Sites | U.S. Army Corps of Engineers | 12/31/2011 | 02/26/2013 | 03/13/2013 |
| US | HIST FTTS | FIFRA/TSCA Tracking System Administrative Case Listing | Environmental Protection Agency | 10/19/2006 | 03/01/2007 | 04/10/2007 |
| US | HIST FTTS INSP | FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis | Environmental Protection Agency | 10/19/2006 | 03/01/2007 | 04/10/2007 |
| US | HMIRS | Hazardous Materials Information Reporting System | U.S. Department of Transportation | 12/31/2012 | 01/03/2013 | 02/27/2013 |
| US | ICIS | Integrated Compliance Information System | Environmental Protection Agency | 07/20/2011 | 11/10/2011 | 01/10/2012 |
| US | INDIAN LUST R1 | Leaking Underground Storage Tanks on Indian Land | EPA Region 1 | 09/28/2012 | 11/01/2012 | 04/12/2013 |
| US | INDIAN LUST R10 | Leaking Underground Storage Tanks on Indian Land | EPA Region 10 | 02/05/2013 | 02/06/2013 | 04/12/2013 |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

| St | Acronym | Full Name | Government Agency | Gov Date | Arvl. Date | Active Date |
|----|-------------------|--|---------------------------------|------------|------------|-------------|
| US | INDIAN LUST R4 | Leaking Underground Storage Tanks on Indian Land | EPA Region 4 | 02/06/2013 | 02/08/2013 | 04/12/2013 |
| US | INDIAN LUST R6 | Leaking Underground Storage Tanks on Indian Land | EPA Region 6 | 09/12/2011 | 09/13/2011 | 11/11/2011 |
| US | INDIAN LUST R7 | Leaking Underground Storage Tanks on Indian Land | EPA Region 7 | 12/31/2012 | 02/28/2013 | 04/12/2013 |
| US | INDIAN LUST R8 | Leaking Underground Storage Tanks on Indian Land | EPA Region 8 | 08/27/2012 | 08/28/2012 | 10/16/2012 |
| US | INDIAN LUST R9 | Leaking Underground Storage Tanks on Indian Land | Environmental Protection Agency | 03/01/2013 | 03/01/2013 | 04/12/2013 |
| US | INDIAN ODI | Report on the Status of Open Dumps on Indian Lands | Environmental Protection Agency | 12/31/1998 | 12/03/2007 | 01/24/2008 |
| US | INDIAN RESERV | Indian Reservations | USGS | 12/31/2005 | 12/08/2006 | 01/11/2007 |
| US | INDIAN UST R1 | Underground Storage Tanks on Indian Land | EPA, Region 1 | 09/28/2012 | 11/07/2012 | 04/12/2013 |
| US | INDIAN UST R10 | Underground Storage Tanks on Indian Land | EPA Region 10 | 02/05/2013 | 02/06/2013 | 04/12/2013 |
| US | INDIAN UST R4 | Underground Storage Tanks on Indian Land | EPA Region 4 | 02/06/2013 | 02/08/2013 | 04/12/2013 |
| US | INDIAN UST R5 | Underground Storage Tanks on Indian Land | EPA Region 5 | 08/02/2012 | 08/03/2012 | 11/05/2012 |
| US | INDIAN UST R6 | Underground Storage Tanks on Indian Land | EPA Region 6 | 05/10/2011 | 05/11/2011 | 06/14/2011 |
| US | INDIAN UST R7 | Underground Storage Tanks on Indian Land | EPA Region 7 | 12/31/2012 | 02/28/2013 | 04/12/2013 |
| US | INDIAN UST R8 | Underground Storage Tanks on Indian Land | EPA Region 8 | 08/27/2012 | 08/28/2012 | 10/16/2012 |
| US | INDIAN UST R9 | Underground Storage Tanks on Indian Land | EPA Region 9 | 02/21/2013 | 02/26/2013 | 04/12/2013 |
| US | INDIAN VCP R1 | Voluntary Cleanup Priority Listing | EPA, Region 1 | 09/28/2012 | 10/02/2012 | 10/16/2012 |
| US | INDIAN VCP R7 | Voluntary Cleanup Priority Listing | EPA, Region 7 | 03/20/2008 | 04/22/2008 | 05/19/2008 |
| US | LIENS 2 | CERCLA Lien Information | Environmental Protection Agency | 02/16/2012 | 03/26/2012 | 06/14/2012 |
| US | LUCIS | Land Use Control Information System | Department of the Navy | 12/09/2005 | 12/11/2006 | 01/11/2007 |
| US | MLTS | Material Licensing Tracking System | Nuclear Regulatory Commission | 06/21/2011 | 07/15/2011 | 09/13/2011 |
| US | NPL | National Priority List | EPA | 02/01/2013 | 03/01/2013 | 03/13/2013 |
| US | NPL LIENS | Federal Superfund Liens | EPA | 10/15/1991 | 02/02/1994 | 03/30/1994 |
| US | ODI | Open Dump Inventory | Environmental Protection Agency | 06/30/1985 | 08/09/2004 | 09/17/2004 |
| US | PADS | PCB Activity Database System | EPA | 11/01/2010 | 11/10/2010 | 02/16/2011 |
| US | PCB TRANSFORMER | PCB Transformer Registration Database | Environmental Protection Agency | 02/01/2011 | 10/19/2011 | 01/10/2012 |
| US | PRP | Potentially Responsible Parties | EPA | 12/02/2012 | 01/03/2013 | 03/13/2013 |
| US | Proposed NPL | Proposed National Priority List Sites | EPA | 02/01/2013 | 03/01/2013 | 03/13/2013 |
| US | RAATS | RCRA Administrative Action Tracking System | EPA | 04/17/1995 | 07/03/1995 | 08/07/1995 |
| US | RADINFO | Radiation Information Database | Environmental Protection Agency | 01/08/2013 | 01/09/2013 | 04/12/2013 |
| US | RCRA NonGen / NLR | RCRA - Non Generators | Environmental Protection Agency | 02/12/2013 | 02/15/2013 | 02/27/2013 |
| US | RCRA-CESQG | RCRA - Conditionally Exempt Small Quantity Generators | Environmental Protection Agency | 02/12/2013 | 02/15/2013 | 02/27/2013 |
| US | RCRA-LQG | RCRA - Large Quantity Generators | Environmental Protection Agency | 02/12/2013 | 02/15/2013 | 02/27/2013 |
| US | RCRA-SQG | RCRA - Small Quantity Generators | Environmental Protection Agency | 02/12/2013 | 02/15/2013 | 02/27/2013 |
| US | RCRA-TSDF | RCRA - Treatment, Storage and Disposal | Environmental Protection Agency | 02/12/2013 | 02/15/2013 | 02/27/2013 |
| US | RMP | Risk Management Plans | Environmental Protection Agency | 05/08/2012 | 05/25/2012 | 07/10/2012 |
| US | ROD | Records Of Decision | EPA | 12/18/2012 | 03/13/2013 | 04/12/2013 |
| US | SCRD DRYCLEANERS | State Coalition for Remediation of Drycleaners Listing | Environmental Protection Agency | 03/07/2011 | 03/09/2011 | 05/02/2011 |
| US | SSTS | Section 7 Tracking Systems | EPA | 12/31/2009 | 12/10/2010 | 02/25/2011 |
| US | TRIS | Toxic Chemical Release Inventory System | EPA | 12/31/2009 | 09/01/2011 | 01/10/2012 |
| US | TSCA | Toxic Substances Control Act | EPA | 12/31/2006 | 09/29/2010 | 12/02/2010 |
| US | UMTRA | Uranium Mill Tailings Sites | Department of Energy | 09/14/2010 | 10/07/2011 | 03/01/2012 |
| US | US AIRS (AFS) | Aerometric Information Retrieval System Facility Subsystem (| EPA | 11/15/2012 | 11/16/2012 | 02/15/2013 |
| US | US AIRS MINOR | Air Facility System Data | EPA | 11/15/2012 | 11/16/2012 | 02/15/2013 |
| US | US BROWNFIELDS | A Listing of Brownfields Sites | Environmental Protection Agency | 12/10/2012 | 12/11/2012 | 12/20/2012 |
| US | US CDL | Clandestine Drug Labs | Drug Enforcement Administration | 11/14/2012 | 12/11/2012 | 02/15/2013 |
| US | US ENG CONTROLS | Engineering Controls Sites List | Environmental Protection Agency | 12/19/2012 | 12/26/2012 | 02/27/2013 |
| US | US FIN ASSUR | Financial Assurance Information | Environmental Protection Agency | 11/20/2012 | 11/30/2012 | 02/27/2013 |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

| St | Acronym | Full Name | Government Agency | Gov Date | Arvl. Date | Active Date |
|----|---------------------------|---|---|------------|------------|-------------|
| US | US HIST CDL | National Clandestine Laboratory Register | Drug Enforcement Administration | 09/01/2007 | 11/19/2008 | 03/30/2009 |
| US | US INST CONTROL | Sites with Institutional Controls | Environmental Protection Agency | 12/19/2012 | 12/26/2012 | 02/27/2013 |
| US | US MINES | Mines Master Index File | Department of Labor, Mine Safety and Health A | 08/18/2011 | 09/08/2011 | 09/29/2011 |
| CT | CT MANIFEST | Hazardous Waste Manifest Data | Department of Energy & Environmental Protecti | 02/18/2013 | 02/18/2013 | 03/21/2013 |
| NJ | NJ MANIFEST | Manifest Information | Department of Environmental Protection | 12/31/2011 | 07/19/2012 | 08/28/2012 |
| NY | NY MANIFEST | Facility and Manifest Data | Department of Environmental Conservation | 02/01/2013 | 02/07/2013 | 03/15/2013 |
| PA | PA MANIFEST | Manifest Information | Department of Environmental Protection | 12/31/2011 | 07/23/2012 | 09/18/2012 |
| RI | RI MANIFEST | Manifest information | Department of Environmental Management | 12/31/2011 | 06/22/2012 | 07/31/2012 |
| WI | WI MANIFEST | Manifest Information | Department of Natural Resources | 12/31/2011 | 07/19/2012 | 09/27/2012 |
| US | Oil/Gas Pipelines | GeoData Digital Line Graphs from 1:100,000-Scale Maps | USGS | | | |
| US | Electric Power Lines | Electric Power Transmission Line Data | Rextag Strategies Corp. | | | |
| US | AHA Hospitals | Sensitive Receptor: AHA Hospitals | American Hospital Association, Inc. | | | |
| US | Medical Centers | Sensitive Receptor: Medical Centers | Centers for Medicare & Medicaid Services | | | |
| US | Nursing Homes | Sensitive Receptor: Nursing Homes | National Institutes of Health | | | |
| US | Public Schools | Sensitive Receptor: Public Schools | National Center for Education Statistics | | | |
| US | Private Schools | Sensitive Receptor: Private Schools | National Center for Education Statistics | | | |
| CA | Daycare Centers | Sensitive Receptor: Licensed Facilities | Department of Social Services | | | |
| US | Flood Zones | 100-year and 500-year flood zones | Emergency Management Agency (FEMA) | | | |
| US | NWI | National Wetlands Inventory | U.S. Fish and Wildlife Service | | | |
| US | USGS 7.5' Topographic Map | Scanned Digital USGS 7.5' Topographic Map (DRG) | USGS | | | |

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

JAMUL INDIAN VILLAGE ACCESS
14100 CAMPO ROAD
JAMUL, CA 91935

TARGET PROPERTY COORDINATES

| | |
|--------------------------------|----------------------------|
| Latitude (North): | 32.7054 - 32° 42' 19.44" |
| Longitude (West): | 116.8697 - 116° 52' 10.92" |
| Universal Transverse Mercator: | Zone 11 |
| UTM X (Meters): | 512212.7 |
| UTM Y (Meters): | 3618445.8 |
| Elevation: | 961 ft. above sea level |

USGS TOPOGRAPHIC MAP

| | |
|-----------------------|------------------------------|
| Target Property Map: | 32116-F7 DULZURA, CA |
| Most Recent Revision: | 1988 |
| West Map: | 32116-F8 JAMUL MOUNTAINS, CA |
| Most Recent Revision: | 1994 |

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

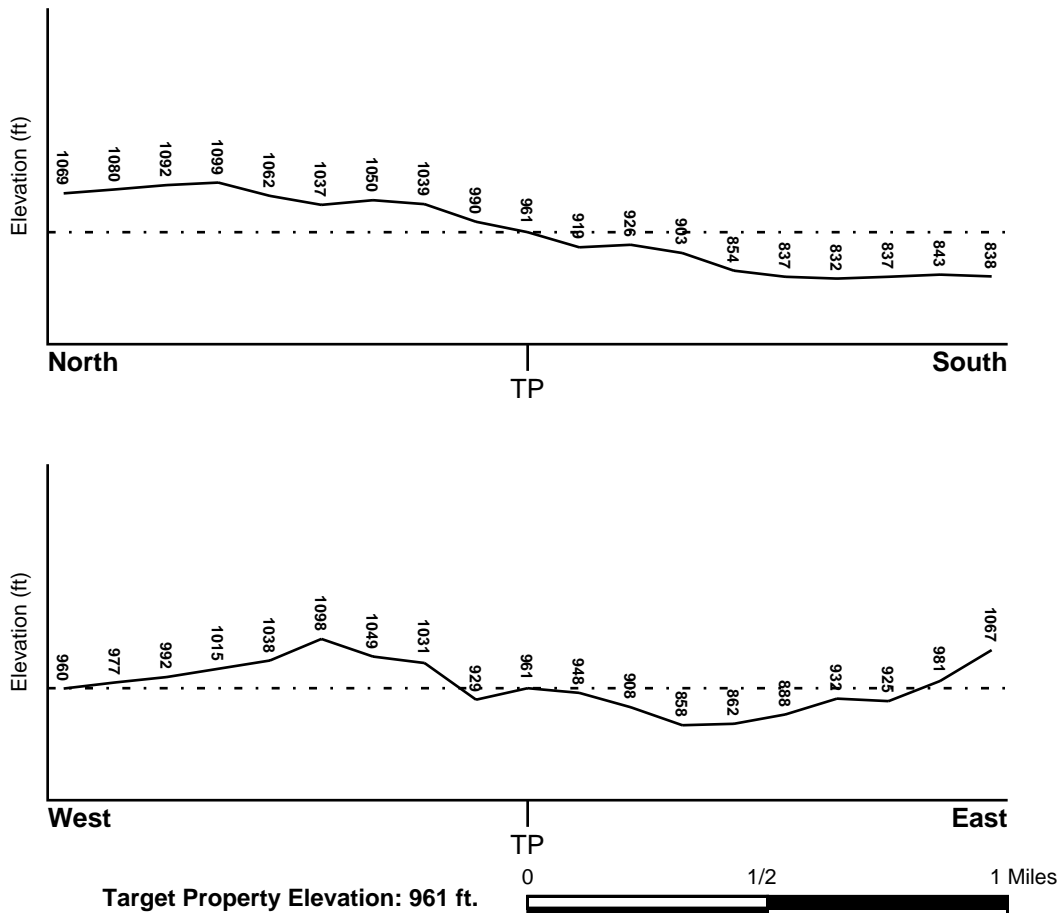
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County
SAN DIEGO, CA

FEMA Flood
Electronic Data
YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 06073C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property
DULZURA

NWI Electronic
Data Coverage
YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data:*

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

| <u>MAP ID</u> | <u>LOCATION FROM TP</u> | <u>GENERAL DIRECTION GROUNDWATER FLOW</u> |
|---------------|-----------------------------|---|
| Not Reported | | |

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

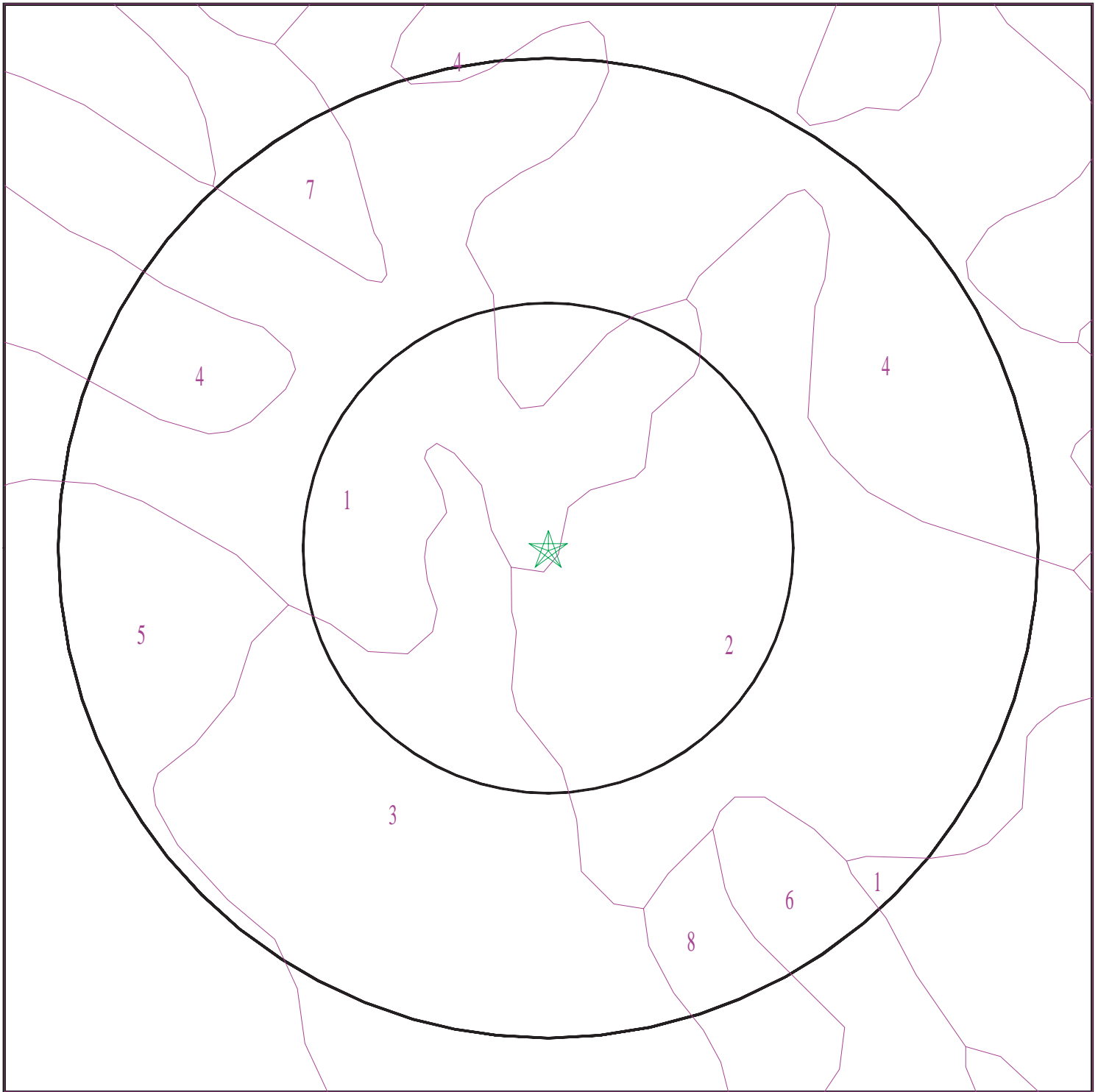
| | |
|---------|--|
| Era: | Mesozoic |
| System: | Cretaceous |
| Series: | Cretaceous granitic rocks |
| Code: | Kg (decoded above as Era, System & Series) |

GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3580276.1s



- ★ Target Property
- SSURGO Soil
- Water



SITE NAME: Jamul Indian Village Access
ADDRESS: 14100 Campo Road
Jamul CA 91935
LAT/LONG: 32.7054 / 116.8697

CLIENT: Natural Investigations
CONTACT: G.O. Graening
INQUIRY #: 3580276.1s
DATE: April 18, 2013 12:29 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

| Soil Layer Information | | | | | | | |
|------------------------|-----------|-----------|--------------------|---|---|--|----------------------|
| Layer | Boundary | | Soil Texture Class | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| | Upper | Lower | | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 9 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. | Max: 4 Min: 1.4 | Max: 7.3 Min: 6.6 |
| 2 | 9 inches | 59 inches | sandy clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. | Max: 4 Min: 1.4 | Max: 7.3 Min: 6.6 |
| 3 | 59 inches | 74 inches | sandy clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. | Max: 4 Min: 1.4 | Max: 7.3 Min: 6.6 |

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: FALLBROOK

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

| Soil Layer Information | | | | | | | |
|------------------------|-----------|-----------|--------------------|---|--------------|--|--------------------|
| Layer | Boundary | | Soil Texture Class | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| | Upper | Lower | | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 5 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |
| 2 | 5 inches | 11 inches | loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |
| 3 | 11 inches | 27 inches | sandy clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |
| 4 | 27 inches | 46 inches | loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |
| 5 | 46 inches | 51 inches | weathered bedrock | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 3

Soil Component Name: LAS POSAS

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

| Soil Layer Information | | | | | | | |
|------------------------|-----------|-----------|--------------------|---|--------------|---|--------------------|
| Layer | Boundary | | Soil Texture Class | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| | Upper | Lower | | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 3 inches | fine sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |
| 2 | 3 inches | 33 inches | clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |
| 3 | 33 inches | 37 inches | weathered bedrock | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |

Soil Map ID: 4

Soil Component Name: FALLBROOK

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

| Soil Layer Information | | | | | | | |
|------------------------|-----------|-----------|--------------------|---|--------------|--|--------------------|
| Layer | Boundary | | Soil Texture Class | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| | Upper | Lower | | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 1 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |
| 2 | 1 inches | 24 inches | sandy clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |
| 3 | 24 inches | 27 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |
| 4 | 27 inches | 31 inches | weathered bedrock | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |

Soil Map ID: 5

Soil Component Name: CIENEBA

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 5 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

| Soil Layer Information | | | | | | | |
|------------------------|----------|-----------|--------------------|---|--------------|---|--------------------|
| Layer | Boundary | | Soil Texture Class | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| | Upper | Lower | | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 7 inches | coarse sandy loam | Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand. | Not reported | Max: Min: | Max: Min: |
| 2 | 7 inches | 11 inches | weathered bedrock | Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand. | Not reported | Max: Min: | Max: Min: |

Soil Map ID: 6

Soil Component Name: LAS POSAS

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

| Soil Layer Information | | | | | | | |
|------------------------|----------|----------|--------------------|---|--------------|---|--------------------|
| Layer | Boundary | | Soil Texture Class | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| | Upper | Lower | | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 3 inches | fine sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

| Soil Layer Information | | | | | | | |
|------------------------|-----------|-----------|--------------------|---|--------------|---|--------------------|
| Layer | Boundary | | Soil Texture Class | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| | Upper | Lower | | AASHTO Group | Unified Soil | | |
| 2 | 3 inches | 33 inches | clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |
| 3 | 33 inches | 37 inches | weathered bedrock | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | Not reported | Max: Min: | Max: Min: |

Soil Map ID: 7

Soil Component Name: WYMAN

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

| Soil Layer Information | | | | | | | |
|------------------------|----------|-----------|--------------------|---|--|---|----------------------|
| Layer | Boundary | | Soil Texture Class | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| | Upper | Lower | | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 12 inches | loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand. | Max: 14 Min: 4 | Max: 7.3 Min: 6.6 |

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

| Soil Layer Information | | | | | | | |
|------------------------|-----------|-----------|--------------------|---|--|---|----------------------|
| Layer | Boundary | | Soil Texture Class | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| | Upper | Lower | | AASHTO Group | Unified Soil | | |
| 2 | 12 inches | 40 inches | clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand. | Max: 14 Min: 4 | Max: 7.3 Min: 6.6 |
| 3 | 40 inches | 66 inches | loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand. | Max: 14 Min: 4 | Max: 7.3 Min: 6.6 |
| 4 | 66 inches | 72 inches | fine sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand. | Max: 14 Min: 4 | Max: 7.3 Min: 6.6 |

Soil Map ID: 8

Soil Component Name: CIENEBA

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

| Soil Layer Information | | | | | | | |
|------------------------|----------|-----------|--------------------|---|--------------|---|--------------------|
| Layer | Boundary | | Soil Texture Class | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| | Upper | Lower | | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 9 inches | coarse sandy loam | Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand. | Not reported | Max: Min: | Max: Min: |
| 2 | 9 inches | 14 inches | weathered bedrock | Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand. | Not reported | Max: Min: | Max: Min: |

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

| <u>DATABASE</u> | <u>SEARCH DISTANCE (miles)</u> |
|------------------|--------------------------------|
| Federal USGS | 1.000 |
| Federal FRDS PWS | Nearest PWS within 1 mile |
| State Database | 1.000 |

FEDERAL USGS WELL INFORMATION

| <u>MAP ID</u> | <u>WELL ID</u> | <u>LOCATION FROM TP</u> |
|----------------|----------------|-------------------------|
| No Wells Found | | |

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

| <u>MAP ID</u> | <u>WELL ID</u> | <u>LOCATION FROM TP</u> |
|---------------|----------------|-------------------------|
| 1 | CA3700174 | 1/2 - 1 Mile NNW |

Note: PWS System location is not always the same as well location.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

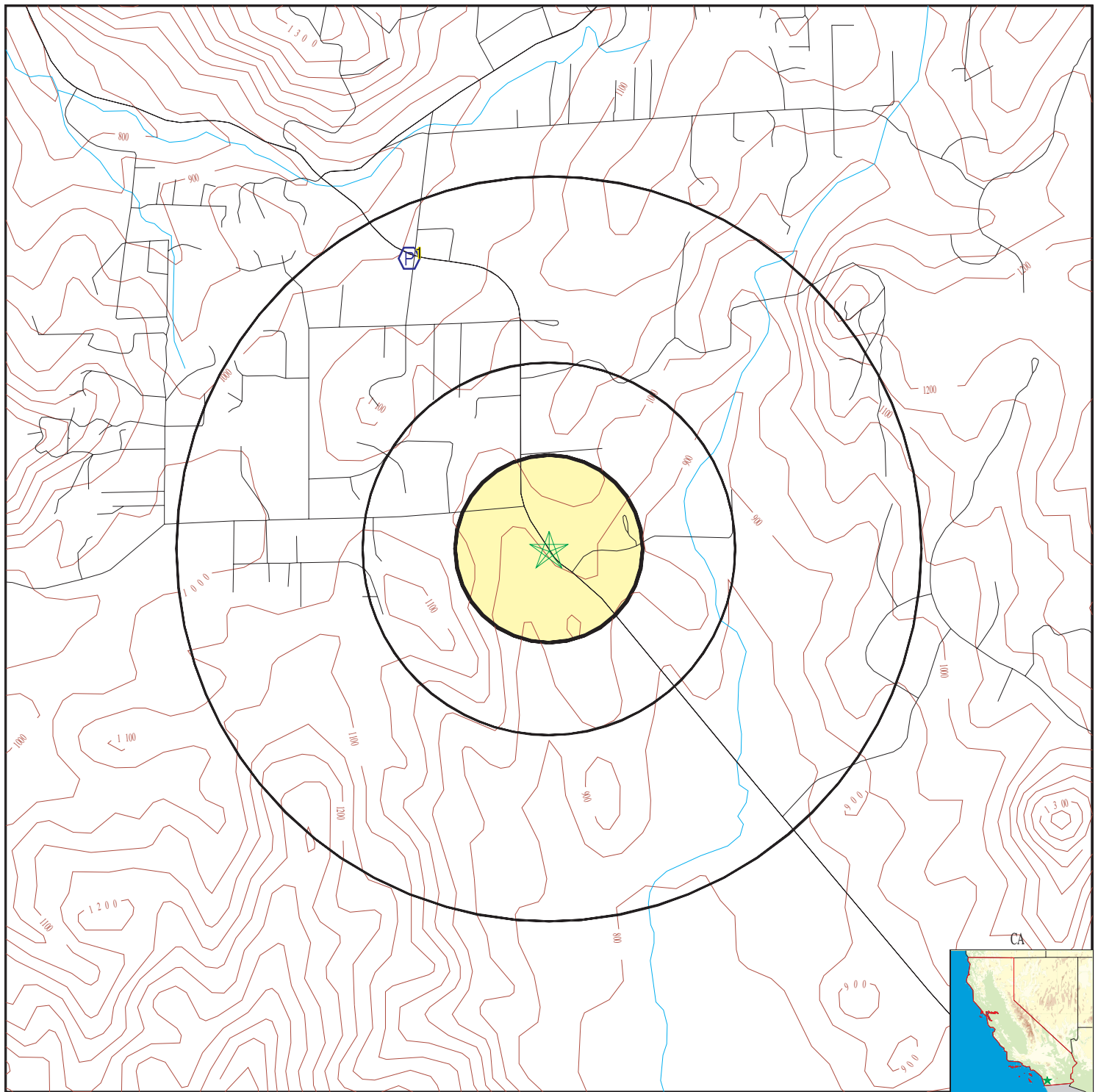
MAP ID

WELL ID

LOCATION
FROM TP

No Wells Found

PHYSICAL SETTING SOURCE MAP - 3580276.1s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

0 1/4 1/2 1 Miles



SITE NAME: Jamul Indian Village Access
 ADDRESS: 14100 Campo Road
 Jamul CA 91935
 LAT/LONG: 32.7054 / 116.8697

CLIENT: Natural Investigations
 CONTACT: G.O. Graening
 INQUIRY #: 3580276.1s
 DATE: April 18, 2013 12:29 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database

EDR ID Number

1
NNW
1/2 - 1 Mile
Higher

[Click here for full text details](#)

FRDS PWS

CA3700174

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

| Zipcode | Num Tests | > 4 pCi/L |
|---------|-----------|-----------|
| 91935 | 6 | 0 |

Federal EPA Radon Zone for SAN DIEGO County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for SAN DIEGO COUNTY, CA

Number of sites tested: 30

| Area | Average Activity | % <4 pCi/L | % 4-20 pCi/L | % >20 pCi/L |
|-------------------------|------------------|--------------|--------------|--------------|
| Living Area - 1st Floor | 0.677 pCi/L | 100% | 0% | 0% |
| Living Area - 2nd Floor | 0.400 pCi/L | 100% | 0% | 0% |
| Basement | Not Reported | Not Reported | Not Reported | Not Reported |

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database

Source: Department of Water Resources

Telephone: 916-651-9648

California Drinking Water Quality Database

Source: Department of Health Services

Telephone: 916-324-2319

The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations

Source: Department of Conservation

Telephone: 916-323-1779

Oil and Gas well locations in the state.

RADON

State Database: CA Radon

Source: Department of Health Services

Telephone: 916-324-2208

Radon Database for California

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX 6

*JAMUL GAMING FACILITY
PRELIMINARY HYDRAULIC STUDY*



SDE

Engineering | Surveying | Planning

Annie S. Aguilar, PE | Ivan R. Fox, PE | Barry L. Munson, PE, QSD | Andrew G. Karydes, PLS | Laurie Simon, Principal Planner

SDE 5481

January 28, 2014

Brandon T. Moore
Marnell Companies
222 Via Marnell Way
Las Vegas, Nevada 89119

Subject: Preliminary Hydraulic Analysis for Northerly Bridge

Reference: 1. *Willow Creek Bridge Locations, Hollywood Casino-Jamul, California*, prepared by Marnell Architecture, dated January 16, 2014.
2. *Jamul Casino and Resort Project, Hydrology and Drainage & Flood Storage Study*, prepared by Martin and Ziemniak, dated September 9, 2006.

Mr. Moore,

SDE has performed a preliminary hydraulic analysis for the northerly bridge crossing proposed for the Hollywood Casino as shown on Reference 1. This analysis was performed to compare the existing and proposed water surface elevations at the northerly property line to determine if bridge construction affected upstream (offsite) water surface conditions during peak flow events. The peak flow used for the analysis was 392 cfs, which is from Reference 2.

The analysis for the existing condition consisted of analyzing the existing asphalt road crossing Willow Creek and culvert (36" cmp) in the flow line of Willow Creek. This section was taken approximately 25' south of the northerly property line of the project site. The road section was modeled as a parabolic weir and the culvert using inlet control. Our analysis indicated that the headwater elevation upstream from the weir/culvert will be approximately 888.9, which is 1.8 feet above the low point in the weir. This indicates that the headwater upstream from the weir will create ponding northerly of the north property line of the project site in excess of 100'.

The bridge crossing for the proposed condition was modeled along the northerly property line as an irregular channel with a bridge abutment within the channel on the easterly side. The analysis assumed that the abutment is a constriction that creates a ponded condition upstream. This is a conservative assumption since a majority of the channel section is in its natural state and flow in the westerly side of the creek is not affected by the abutment. The headwater for the ponded condition upstream from the bridge was determined to be 888.1.

SAN DIEGUITO ENGINEERING, INC.

sdeinc.com

760.753.5525 | 760.943.8236 fax | 4407 Manchester Avenue | Suite 105 | Encinitas, CA 92024

Based on a comparison of the analyses of existing and proposed conditions, the headwater for the weir crossing in the existing condition is higher and controls. This indicates that any backwater effects, or increase of headwater from the bridge abutment, will be submerged below the weir headwater and any upstream effects from the bridge abutment will be minimal.

In addition, we have reviewed the proposed southerly bridge crossing along the south property line. The abutments do not encroach into the channel on either side and will have no downstream effects on the flow. Further, the CIDH piles represent a small encroachment relative to the entire cross section of flow and will not create any significant impact to the flow downstream from the site.

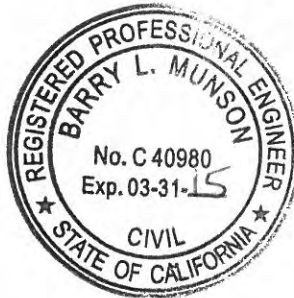
If you have any questions, please do not hesitate to contact our office.

San Dieguito Engineering, Inc.

Sincerely,



Barry L. Munson, PE
Principal Engineer



SAN DIEGUITO ENGINEERING, INC.

sdeinc.com

760.753.5525 | 760.943.8236 fax | 4407 Manchester Avenue | Suite 105 | Encinitas, CA 92024

HYDROLOGIC STUDY

WEIR AND PIPE ANALYSIS

PROJECT NAME: Jamul Indian Village

PROJECT NUMBER: 5481

DATE: 1/21/2014

COMMENT:

COORD: N32°42' E116°52'

Q100 (cfs) 392

Weir Coeff "C" 2.005

| Elev | T | Hm | Q weir <1> | Q pipe <2> | Qtotal | |
|-------|----|-----|------------|------------|--------|---------------------------------|
| 889.0 | 69 | 1.8 | 334 | 77 | 411 | Solution between 88.9 and 89.0= |
| 888.9 | 67 | 1.7 | 298 | 76 | 374 | Headwater Elevation |
| 888.8 | 64 | 1.6 | 260 | 75 | 335 | |
| 888.7 | 62 | 1.5 | 228 | 73 | 301 | |
| 888.6 | 59 | 1.4 | 196 | 72 | 268 | |
| 888.5 | 57 | 1.3 | 169 | 71 | 240 | |
| 888.4 | 55 | 1.2 | 145 | 70 | 215 | |
| 888.3 | 52 | 1.1 | 120 | 69 | 189 | |
| 888.2 | 50 | 1 | 100 | 67 | 167 | |
| 888.1 | 47 | 0.9 | 80 | 66 | 146 | |
| 888.0 | 45 | 0.8 | 65 | 65 | 130 | |
| 887.2 | 0 | 0 | 0 | 58 | 58 | Low Point in Dip |
| 882.4 | 0 | 0 | 0 | 0 | 0 | Inlet 36" CMP |

<1> $Q = C \times T \times Hm^{1.5}$

<2> From Bureau of Public Roads Inlet Control Chart

Project Description

Manning Formula

Normal Depth

Channel Slope

0.01139 ft/ft

Discharge

392.00 ft³/s

Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+90.00 | 898.00 |
| 0+90.01 | 891.30 |
| 0+91.60 | 891.00 |
| 0+98.30 | 890.00 |
| 1+00.00 | 889.20 |
| 1+14.85 | 887.74 |
| 1+36.30 | 886.62 |
| 1+46.61 | 883.39 |
| 1+57.99 | 885.19 |
| 1+58.00 | 898.00 |

LOW PT NORTH R
886.94 POST
DEV

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|-------------------|-------------------|-----------------------|
| (0+90.00, 898.00) | (0+90.01, 891.30) | 0.013 |
| (0+90.01, 891.30) | (1+57.99, 885.19) | 0.030 |
| (1+57.99, 885.19) | (1+58.00, 898.00) | 0.013 |

Current Roughness Weighted Method

Pavlovskii's Method

Open Channel Weighting Method

Pavlovskii's Method

Closed Channel Weighting Method

Pavlovskii's Method

Results

Normal Depth

3.55 ft

Worksheet for Section 115+00 w/bridge 20140116

Results

| | | |
|------------------|---------------------|-----------------|
| Elevation Range | 883.39 to 898.00 ft | |
| Flow Area | 50.99 | ft ² |
| Wetted Perimeter | 30.14 | ft |
| Hydraulic Radius | 1.69 | ft |
| Top Width | 27.75 | ft |
| Normal Depth | 3.55 | ft |
| Critical Depth | 3.55 | ft |
| Critical Slope | 0.01139 | ft/ft |
| Velocity | 7.69 | ft/s |
| Velocity Head | 0.92 | ft |
| Specific Energy | 4.46 | ft |
| Froude Number | 1.00 | |
| Flow Type | Subcritical | |

$$\leftarrow \frac{V_n^2}{2g}$$

GVF Input Data

| | | |
|------------------|------|----|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

GVF Output Data

| | | |
|---------------------|----------|-------|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 3.55 | ft |
| Critical Depth | 3.55 | ft |
| Channel Slope | 0.01139 | ft/ft |
| Critical Slope | 0.01139 | ft/ft |

*
$$HW_{weir} = FL + D_n + (1 + k_e) \frac{V_n^2}{2g}$$

$$= 883.39 + 3.55 + (1 + 0.3) 0.92$$

$$= 888.14 \quad \underline{OK} < 888.9 \text{ WEIR TAILWATER}$$

* ASSUMED FULL PONDING CONDITION \rightarrow WORST CASE

Cross Section for Section 115+00 w/bridge 20140116

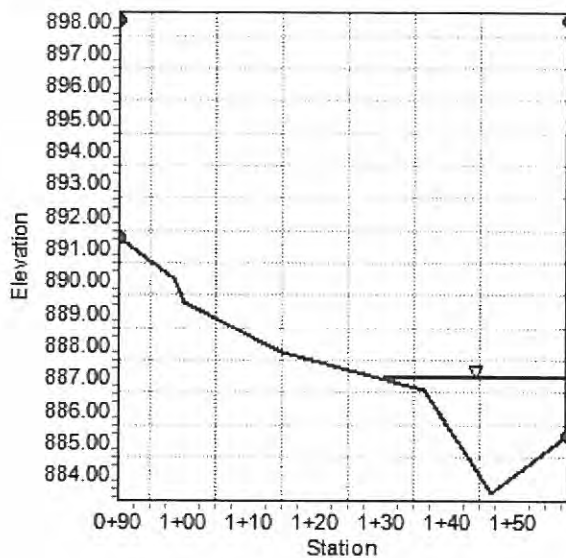
Project Description

| | |
|-----------------|-----------------|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

Input Data

| | | |
|---------------|---------|--------------------|
| Channel Slope | 0.01139 | ft/ft |
| Normal Depth | 3.55 | ft |
| Discharge | 392.00 | ft ³ /s |

Cross Section Image



Worksheet for Section 115+00 Pre-Development

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.02130 ft/ft
Discharge 392.00 ft³/s
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
|--------------|----------------|

| | |
|---------|--------|
| 0+84.50 | 892.00 |
| 0+91.60 | 891.00 |
| 0+98.30 | 890.00 |
| 1+00.00 | 889.28 |
| 1+14.85 | 887.74 |
| 1+36.30 | 886.62 |
| 1+46.61 | 883.39 |
| 1+59.86 | 885.55 |
| 1+69.70 | 888.25 |
| 1+70.40 | 889.00 |
| 1+72.30 | 890.00 |
| 1+74.30 | 891.00 |
| 1+75.40 | 892.00 |

*NORTH R LOW POINT
WS = 886.38*

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|-------------------|-------------------|-----------------------|
| (0+84.50, 892.00) | (1+75.40, 892.00) | 0.030 |

Options

Current Roughness Weighted Method Pavlovskii's Method
Open Channel Weighting Method Pavlovskii's Method
Closed Channel Weighting Method Pavlovskii's Method

Worksheet for Section 115+00 Pre-Development

Results

| | | | |
|------------------|---------------------|---------|-----------------|
| Normal Depth | | 2.99 | ft |
| Elevation Range | 883.39 to 892.00 ft | | |
| Flow Area | | 40.75 | ft ² |
| Wetted Perimeter | | 26.54 | ft |
| Hydraulic Radius | | 1.54 | ft |
| Top Width | | 25.80 | ft |
| Normal Depth | | 2.99 | ft |
| Critical Depth | | 3.45 | ft |
| Critical Slope | | 0.01147 | ft/ft |
| Velocity | | 9.62 | ft/s |
| Velocity Head | | 1.44 | ft |
| Specific Energy | | 4.43 | ft |
| Froude Number | | 1.35 | |
| Flow Type | Supercritical | | |

GVF Input Data

| | | |
|------------------|------|----|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

GVF Output Data

| | | |
|---------------------|----------|-------|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 2.99 | ft |
| Critical Depth | 3.45 | ft |
| Channel Slope | 0.02130 | ft/ft |
| Critical Slope | 0.01147 | ft/ft |

Cross Section for Section 115+00

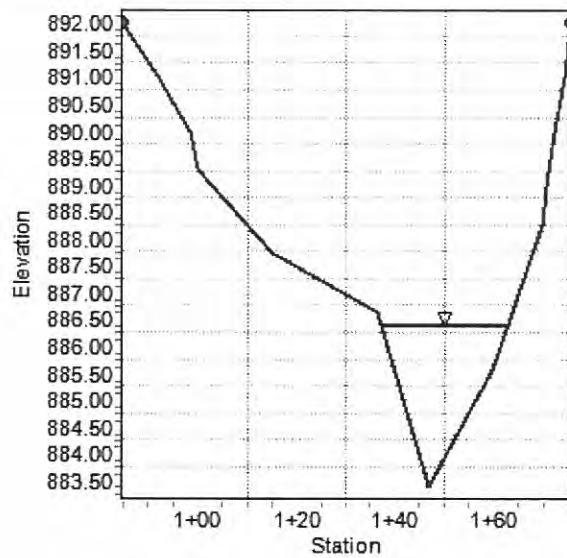
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

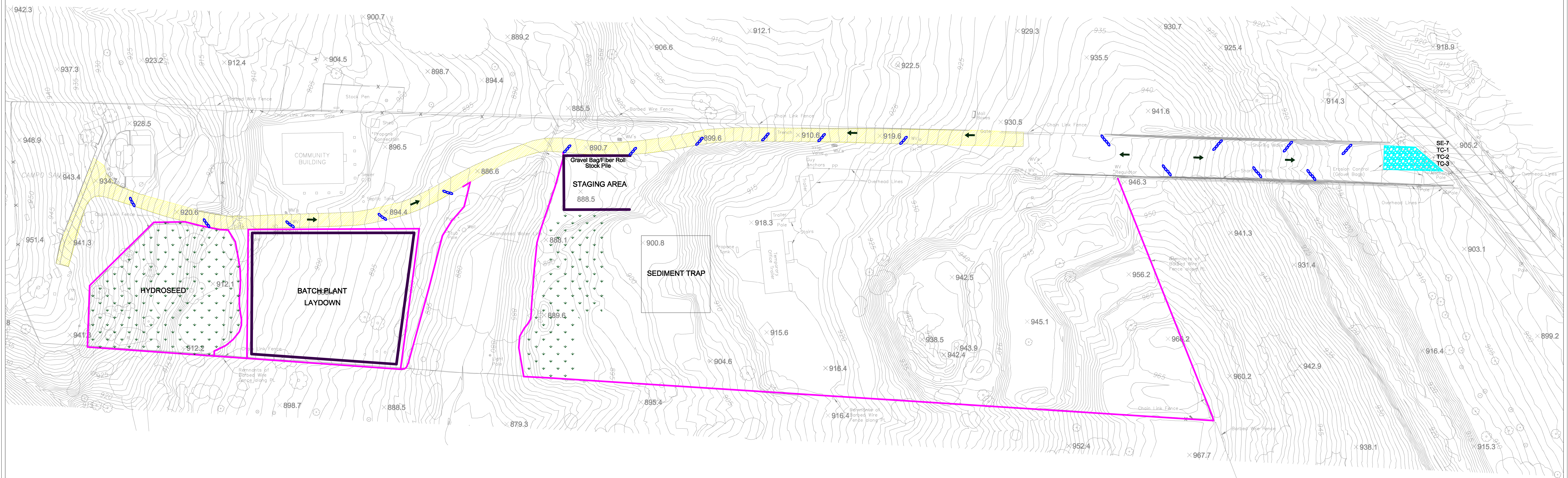
Channel Slope 0.02130 ft/ft
Normal Depth 2.99 ft
Discharge 392.00 ft³/s

Cross Section Image



APPENDIX 7

JAMUL GAMING FACILITY SOIL EROSION PLAN



| LEGEND | |
|--------|------------------------------|
| | SE-4 Reinforced Silt Fence |
| | SE-5 Fiber Roll |
| | TC-1 Construction Entrance |
| | Hydroseed |
| | Stabilized Roadway |
| | Gravel Bag Berm - 2 Bag High |
| | Drainage |

| | | | |
|--|-----------------|----------------------|--------------|
| Hollywood Casino Jamul Indian Reservation | | | |
| PROJECT # | PROJECT MANAGER | DRAWN BY | DATE |
| | Wes Udwin | Samuel Scroggin | Dec 23, 2013 |
| SCALE | DIVISION | DRAWING TITLE | SHEET OF |
| NOT TO SCALE | Erosion Control | Erosion Plan Phase 2 | 1 1 |



APPENDIX 8

*JAMUL GAMING FACILITY
AIR QUALITY DATA SHEETS*

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Noise & Air Tools\Models\Urbemis 2007 9.2.4\JIC Gaming - Grading 40 miles.urb924

Project Name: Jamual Gaming Facility - Grading

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

| | <u>ROG</u> | <u>NOx</u> | <u>CO</u> | <u>SO2</u> | <u>PM10 Dust</u> | <u>PM10 Exhaust</u> | <u>PM10</u> | <u>PM2.5 Dust</u> | <u>PM2.5 Exhaust</u> | <u>PM2.5</u> | <u>CO2</u> |
|-----------------------------------|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|
| 2014 TOTALS (lbs/day unmitigated) | 20.68 | 252.54 | 96.13 | 0.45 | 431.90 | 9.41 | 441.31 | 90.40 | 8.66 | 99.06 | 53,448.52 |
| 2014 TOTALS (lbs/day mitigated) | 20.68 | 241.28 | 96.13 | 0.45 | 89.75 | 9.41 | 99.16 | 18.94 | 8.66 | 27.60 | 53,448.52 |

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

| | <u>ROG</u> | <u>NOx</u> | <u>CO</u> | <u>SO2</u> | <u>PM10 Dust</u> | <u>PM10 Exhaust</u> | <u>PM10</u> | <u>PM2.5 Dust</u> | <u>PM2.5 Exhaust</u> | <u>PM2.5</u> | <u>CO2</u> |
|--|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|
|--|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|

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| | | | | | | | | | | | |
|---|--------------|---------------|--------------|-------------|---------------|-------------|---------------|--------------|-------------|--------------|------------------|
| Time Slice 2/3/2014-9/3/2014 Active Days: 183 | <u>20.68</u> | <u>252.54</u> | <u>96.13</u> | <u>0.45</u> | <u>431.90</u> | <u>9.41</u> | <u>441.31</u> | <u>90.40</u> | <u>8.66</u> | <u>99.06</u> | <u>53,448.52</u> |
| Mass Grading 02/03/2014-09/03/2014 | 20.68 | 252.54 | 96.13 | 0.45 | 431.90 | 9.41 | 441.31 | 90.40 | 8.66 | 99.06 | 53,448.52 |
| Mass Grading Dust | 0.00 | 0.00 | 0.00 | 0.00 | 430.22 | 0.00 | 430.22 | 89.85 | 0.00 | 89.85 | 0.00 |
| Mass Grading Off Road Diesel | 4.72 | 37.54 | 17.38 | 0.00 | 0.00 | 1.46 | 1.46 | 0.00 | 1.34 | 1.34 | 5,594.29 |
| Mass Grading On Road Diesel | 15.92 | 214.91 | 77.01 | 0.44 | 1.67 | 7.95 | 9.61 | 0.55 | 7.31 | 7.86 | 47,619.15 |
| Mass Grading Worker Trips | 0.05 | 0.09 | 1.74 | 0.00 | 0.01 | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 | 235.08 |

Phase Assumptions

Phase: Mass Grading 2/3/2014 - 9/3/2014 - Site Grading

Total Acres Disturbed: 5

Maximum Daily Acreage Disturbed: 1.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 3540 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 11827.88

Off-Road Equipment:

1 Crawler Tractors (310 hp) operating at a 0.64 load factor for 9.6 hours per day

1 Excavators (428 hp) operating at a 0.57 load factor for 9.6 hours per day

1 Graders (135 hp) operating at a 0.61 load factor for 9.6 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 9.6 hours per day

1 Tractors/Loaders/Backhoes (270 hp) operating at a 0.55 load factor for 9.6 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 9.6 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

| | | | | | | | | | | |
|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|
| <u>ROG</u> | <u>NOx</u> | <u>CO</u> | <u>SO2</u> | <u>PM10 Dust</u> | <u>PM10 Exhaust</u> | <u>PM10</u> | <u>PM2.5 Dust</u> | <u>PM2.5 Exhaust</u> | <u>PM2.5</u> | <u>CO2</u> |
|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|

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| | | | | | | | | | | | |
|---|--------------|---------------|--------------|-------------|--------------|-------------|--------------|--------------|-------------|--------------|------------------|
| Time Slice 2/3/2014-9/3/2014 Active Days: 183 | <u>20.68</u> | <u>241.28</u> | <u>96.13</u> | <u>0.45</u> | <u>89.75</u> | <u>9.41</u> | <u>99.16</u> | <u>18.94</u> | <u>8.66</u> | <u>27.60</u> | <u>53,448.52</u> |
| Mass Grading 02/03/2014-09/03/2014 | 20.68 | 241.28 | 96.13 | 0.45 | 89.75 | 9.41 | 99.16 | 18.94 | 8.66 | 27.60 | 53,448.52 |
| Mass Grading Dust | 0.00 | 0.00 | 0.00 | 0.00 | 88.07 | 0.00 | 88.07 | 18.39 | 0.00 | 18.39 | 0.00 |
| Mass Grading Off Road Diesel | 4.72 | 26.28 | 17.38 | 0.00 | 0.00 | 1.46 | 1.46 | 0.00 | 1.34 | 1.34 | 5,594.29 |
| Mass Grading On Road Diesel | 15.92 | 214.91 | 77.01 | 0.44 | 1.67 | 7.95 | 9.61 | 0.55 | 7.31 | 7.86 | 47,619.15 |
| Mass Grading Worker Trips | 0.05 | 0.09 | 1.74 | 0.00 | 0.01 | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 | 235.08 |

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 2/3/2014 - 9/3/2014 - Site Grading

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:
PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:
PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:
PM10: 55% PM25: 55%

For Graders, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Water Trucks, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Excavators, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Skid Steer Loaders, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Crawler Tractors, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Noise & Air Tools\Models\Urbemis 2007 9.2.4\JIC Gaming - Grading 40 miles.urb924

Project Name: Jamual Gaming Facility - Grading

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

| | <u>ROG</u> | <u>NOx</u> | <u>CO</u> | <u>SO2</u> | <u>PM10 Dust</u> | <u>PM10 Exhaust</u> | <u>PM10</u> | <u>PM2.5 Dust</u> | <u>PM2.5 Exhaust</u> | <u>PM2.5</u> | <u>CO2</u> |
|-------------------------------------|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|
| 2014 TOTALS (tons/year unmitigated) | 1.89 | 23.11 | 8.80 | 0.04 | 39.52 | 0.86 | 40.38 | 8.27 | 0.79 | 9.06 | 4,890.54 |
| 2014 TOTALS (tons/year mitigated) | 1.89 | 22.08 | 8.80 | 0.04 | 8.21 | 0.86 | 9.07 | 1.73 | 0.79 | 2.53 | 4,890.54 |
| Percent Reduction | 0.00 | 4.46 | 0.00 | 0.00 | 79.22 | 0.00 | 77.53 | 79.04 | 0.00 | 72.14 | 0.00 |

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

| | <u>ROG</u> | <u>NOx</u> | <u>CO</u> | <u>SO2</u> | <u>PM10 Dust</u> | <u>PM10 Exhaust</u> | <u>PM10</u> | <u>PM2.5 Dust</u> | <u>PM2.5 Exhaust</u> | <u>PM2.5</u> | <u>CO2</u> |
|--|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|
|--|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|

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| | | | | | | | | | | | |
|------------------------------------|------|-------|------|------|-------|------|-------|------|------|------|----------|
| 2014 | 1.89 | 23.11 | 8.80 | 0.04 | 39.52 | 0.86 | 40.38 | 8.27 | 0.79 | 9.06 | 4,890.54 |
| Mass Grading 02/03/2014-09/03/2014 | 1.89 | 23.11 | 8.80 | 0.04 | 39.52 | 0.86 | 40.38 | 8.27 | 0.79 | 9.06 | 4,890.54 |
| Mass Grading Dust | 0.00 | 0.00 | 0.00 | 0.00 | 39.37 | 0.00 | 39.37 | 8.22 | 0.00 | 8.22 | 0.00 |
| Mass Grading Off Road Diesel | 0.43 | 3.43 | 1.59 | 0.00 | 0.00 | 0.13 | 0.13 | 0.00 | 0.12 | 0.12 | 511.88 |
| Mass Grading On Road Diesel | 1.46 | 19.66 | 7.05 | 0.04 | 0.15 | 0.73 | 0.88 | 0.05 | 0.67 | 0.72 | 4,357.15 |
| Mass Grading Worker Trips | 0.00 | 0.01 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 21.51 |

Phase Assumptions

- Phase: Mass Grading 2/3/2014 - 9/3/2014 - Site Grading
- Total Acres Disturbed: 5
- Maximum Daily Acreage Disturbed: 1.25
- Fugitive Dust Level of Detail: Low
- Onsite Cut/Fill: 3540 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day
- On Road Truck Travel (VMT): 11827.88
- Off-Road Equipment:
- 1 Crawler Tractors (310 hp) operating at a 0.64 load factor for 9.6 hours per day
 - 1 Excavators (428 hp) operating at a 0.57 load factor for 9.6 hours per day
 - 1 Graders (135 hp) operating at a 0.61 load factor for 9.6 hours per day
 - 1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 9.6 hours per day
 - 1 Tractors/Loaders/Backhoes (270 hp) operating at a 0.55 load factor for 9.6 hours per day
 - 1 Water Trucks (189 hp) operating at a 0.5 load factor for 9.6 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

| | | | | | | | | | | |
|-----|-----|----|-----|-----------|--------------|------|------------|---------------|-------|-----|
| ROG | NOx | CO | SO2 | PM10 Dust | PM10 Exhaust | PM10 | PM2.5 Dust | PM2.5 Exhaust | PM2.5 | CO2 |
|-----|-----|----|-----|-----------|--------------|------|------------|---------------|-------|-----|

2/24/2014 3:07:02 PM

| | | | | | | | | | | | |
|------------------------------------|------|-------|------|------|------|------|------|------|------|------|----------|
| 2014 | 1.89 | 22.08 | 8.80 | 0.04 | 8.21 | 0.86 | 9.07 | 1.73 | 0.79 | 2.53 | 4,890.54 |
| Mass Grading 02/03/2014-09/03/2014 | 1.89 | 22.08 | 8.80 | 0.04 | 8.21 | 0.86 | 9.07 | 1.73 | 0.79 | 2.53 | 4,890.54 |
| Mass Grading Dust | 0.00 | 0.00 | 0.00 | 0.00 | 8.06 | 0.00 | 8.06 | 1.68 | 0.00 | 1.68 | 0.00 |
| Mass Grading Off Road Diesel | 0.43 | 2.40 | 1.59 | 0.00 | 0.00 | 0.13 | 0.13 | 0.00 | 0.12 | 0.12 | 511.88 |
| Mass Grading On Road Diesel | 1.46 | 19.66 | 7.05 | 0.04 | 0.15 | 0.73 | 0.88 | 0.05 | 0.67 | 0.72 | 4,357.15 |
| Mass Grading Worker Trips | 0.00 | 0.01 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 21.51 |

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 2/3/2014 - 9/3/2014 - Site Grading

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:
PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:
PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:
PM10: 55% PM25: 55%

For Graders, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Water Trucks, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Excavators, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Skid Steer Loaders, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Crawler Tractors, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Noise & Air Tools\Models\Urbemis 2007 9.2.4\JIC Gaming - Grading 60 miles.urb924

Project Name: Jamual Gaming Facility - Grading

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

| | <u>ROG</u> | <u>NOx</u> | <u>CO</u> | <u>SO2</u> | <u>PM10 Dust</u> | <u>PM10 Exhaust</u> | <u>PM10</u> | <u>PM2.5 Dust</u> | <u>PM2.5 Exhaust</u> | <u>PM2.5</u> | <u>CO2</u> |
|-----------------------------------|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|
| 2014 TOTALS (lbs/day unmitigated) | 21.10 | 258.27 | 98.18 | 0.46 | 318.66 | 9.62 | 328.29 | 66.76 | 8.85 | 75.61 | 54,718.36 |
| 2014 TOTALS (lbs/day mitigated) | 21.10 | 247.01 | 98.18 | 0.46 | 66.60 | 9.62 | 76.23 | 14.12 | 8.85 | 22.97 | 54,718.36 |

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

| | <u>ROG</u> | <u>NOx</u> | <u>CO</u> | <u>SO2</u> | <u>PM10 Dust</u> | <u>PM10 Exhaust</u> | <u>PM10</u> | <u>PM2.5 Dust</u> | <u>PM2.5 Exhaust</u> | <u>PM2.5</u> | <u>CO2</u> |
|--|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|
|--|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|

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| | | | | | | | | | | | |
|---|--------------|---------------|--------------|-------------|---------------|-------------|---------------|--------------|-------------|--------------|------------------|
| Time Slice 2/3/2014-9/3/2014 Active Days: 183 | <u>21.10</u> | <u>258.27</u> | <u>98.18</u> | <u>0.46</u> | <u>318.66</u> | <u>9.62</u> | <u>328.29</u> | <u>66.76</u> | <u>8.85</u> | <u>75.61</u> | <u>54,718.36</u> |
| Mass Grading 02/03/2014-09/03/2014 | 21.10 | 258.27 | 98.18 | 0.46 | 318.66 | 9.62 | 328.29 | 66.76 | 8.85 | 75.61 | 54,718.36 |
| Mass Grading Dust | 0.00 | 0.00 | 0.00 | 0.00 | 316.94 | 0.00 | 316.94 | 66.19 | 0.00 | 66.19 | 0.00 |
| Mass Grading Off Road Diesel | 4.72 | 37.54 | 17.38 | 0.00 | 0.00 | 1.46 | 1.46 | 0.00 | 1.34 | 1.34 | 5,594.29 |
| Mass Grading On Road Diesel | 16.34 | 220.64 | 79.07 | 0.45 | 1.71 | 8.16 | 9.87 | 0.56 | 7.51 | 8.07 | 48,889.00 |
| Mass Grading Worker Trips | 0.05 | 0.09 | 1.74 | 0.00 | 0.01 | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 | 235.08 |

Phase Assumptions

Phase: Mass Grading 2/3/2014 - 9/3/2014 - Site Grading

Total Acres Disturbed: 5

Maximum Daily Acreage Disturbed: 1.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 2580 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 12143.29

Off-Road Equipment:

1 Crawler Tractors (310 hp) operating at a 0.64 load factor for 9.6 hours per day

1 Excavators (428 hp) operating at a 0.57 load factor for 9.6 hours per day

1 Graders (135 hp) operating at a 0.61 load factor for 9.6 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 9.6 hours per day

1 Tractors/Loaders/Backhoes (270 hp) operating at a 0.55 load factor for 9.6 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 9.6 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

| | | | | | | | | | | |
|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|
| <u>ROG</u> | <u>NOx</u> | <u>CO</u> | <u>SO2</u> | <u>PM10 Dust</u> | <u>PM10 Exhaust</u> | <u>PM10</u> | <u>PM2.5 Dust</u> | <u>PM2.5 Exhaust</u> | <u>PM2.5</u> | <u>CO2</u> |
|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|

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| | | | | | | | | | | | |
|---|--------------|---------------|--------------|-------------|--------------|-------------|--------------|--------------|-------------|--------------|------------------|
| Time Slice 2/3/2014-9/3/2014 Active Days: 183 | <u>21.10</u> | <u>247.01</u> | <u>98.18</u> | <u>0.46</u> | <u>66.60</u> | <u>9.62</u> | <u>76.23</u> | <u>14.12</u> | <u>8.85</u> | <u>22.97</u> | <u>54,718.36</u> |
| Mass Grading 02/03/2014-09/03/2014 | 21.10 | 247.01 | 98.18 | 0.46 | 66.60 | 9.62 | 76.23 | 14.12 | 8.85 | 22.97 | 54,718.36 |
| Mass Grading Dust | 0.00 | 0.00 | 0.00 | 0.00 | 64.88 | 0.00 | 64.88 | 13.55 | 0.00 | 13.55 | 0.00 |
| Mass Grading Off Road Diesel | 4.72 | 26.28 | 17.38 | 0.00 | 0.00 | 1.46 | 1.46 | 0.00 | 1.34 | 1.34 | 5,594.29 |
| Mass Grading On Road Diesel | 16.34 | 220.64 | 79.07 | 0.45 | 1.71 | 8.16 | 9.87 | 0.56 | 7.51 | 8.07 | 48,889.00 |
| Mass Grading Worker Trips | 0.05 | 0.09 | 1.74 | 0.00 | 0.01 | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 | 235.08 |

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 2/3/2014 - 9/3/2014 - Site Grading

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:
PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:
PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:
PM10: 55% PM25: 55%

For Graders, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Water Trucks, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Excavators, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Skid Steer Loaders, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Crawler Tractors, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Noise & Air Tools\Models\Urbemis 2007 9.2.4\JIC Gaming - Grading 60 miles.urb924

Project Name: Jamual Gaming Facility - Grading

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

| | <u>ROG</u> | <u>NOx</u> | <u>CO</u> | <u>SO2</u> | <u>PM10 Dust</u> | <u>PM10 Exhaust</u> | <u>PM10</u> | <u>PM2.5 Dust</u> | <u>PM2.5 Exhaust</u> | <u>PM2.5</u> | <u>CO2</u> |
|-------------------------------------|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|
| 2014 TOTALS (tons/year unmitigated) | 1.93 | 23.63 | 8.98 | 0.04 | 29.16 | 0.88 | 30.04 | 6.11 | 0.81 | 6.92 | 5,006.73 |
| 2014 TOTALS (tons/year mitigated) | 1.93 | 22.60 | 8.98 | 0.04 | 6.09 | 0.88 | 6.97 | 1.29 | 0.81 | 2.10 | 5,006.73 |
| Percent Reduction | 0.00 | 4.36 | 0.00 | 0.00 | 79.10 | 0.00 | 76.78 | 78.85 | 0.00 | 69.62 | 0.00 |

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

| | <u>ROG</u> | <u>NOx</u> | <u>CO</u> | <u>SO2</u> | <u>PM10 Dust</u> | <u>PM10 Exhaust</u> | <u>PM10</u> | <u>PM2.5 Dust</u> | <u>PM2.5 Exhaust</u> | <u>PM2.5</u> | <u>CO2</u> |
|--|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|
|--|------------|------------|-----------|------------|------------------|---------------------|-------------|-------------------|----------------------|--------------|------------|

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| | | | | | | | | | | | |
|------------------------------------|------|-------|------|------|-------|------|-------|------|------|------|----------|
| 2014 | 1.93 | 23.63 | 8.98 | 0.04 | 29.16 | 0.88 | 30.04 | 6.11 | 0.81 | 6.92 | 5,006.73 |
| Mass Grading 02/03/2014-09/03/2014 | 1.93 | 23.63 | 8.98 | 0.04 | 29.16 | 0.88 | 30.04 | 6.11 | 0.81 | 6.92 | 5,006.73 |
| Mass Grading Dust | 0.00 | 0.00 | 0.00 | 0.00 | 29.00 | 0.00 | 29.00 | 6.06 | 0.00 | 6.06 | 0.00 |
| Mass Grading Off Road Diesel | 0.43 | 3.43 | 1.59 | 0.00 | 0.00 | 0.13 | 0.13 | 0.00 | 0.12 | 0.12 | 511.88 |
| Mass Grading On Road Diesel | 1.50 | 20.19 | 7.23 | 0.04 | 0.16 | 0.75 | 0.90 | 0.05 | 0.69 | 0.74 | 4,473.34 |
| Mass Grading Worker Trips | 0.00 | 0.01 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 21.51 |

Phase Assumptions

- Phase: Mass Grading 2/3/2014 - 9/3/2014 - Site Grading
- Total Acres Disturbed: 5
- Maximum Daily Acreage Disturbed: 1.25
- Fugitive Dust Level of Detail: Low
- Onsite Cut/Fill: 2580 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day
- On Road Truck Travel (VMT): 12143.29
- Off-Road Equipment:
- 1 Crawler Tractors (310 hp) operating at a 0.64 load factor for 9.6 hours per day
 - 1 Excavators (428 hp) operating at a 0.57 load factor for 9.6 hours per day
 - 1 Graders (135 hp) operating at a 0.61 load factor for 9.6 hours per day
 - 1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 9.6 hours per day
 - 1 Tractors/Loaders/Backhoes (270 hp) operating at a 0.55 load factor for 9.6 hours per day
 - 1 Water Trucks (189 hp) operating at a 0.5 load factor for 9.6 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

| | | | | | | | | | | |
|-----|-----|----|-----|-----------|--------------|------|------------|---------------|-------|-----|
| ROG | NOx | CO | SO2 | PM10 Dust | PM10 Exhaust | PM10 | PM2.5 Dust | PM2.5 Exhaust | PM2.5 | CO2 |
|-----|-----|----|-----|-----------|--------------|------|------------|---------------|-------|-----|

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| | | | | | | | | | | | |
|------------------------------------|------|-------|------|------|------|------|------|------|------|------|----------|
| 2014 | 1.93 | 22.60 | 8.98 | 0.04 | 6.09 | 0.88 | 6.97 | 1.29 | 0.81 | 2.10 | 5,006.73 |
| Mass Grading 02/03/2014-09/03/2014 | 1.93 | 22.60 | 8.98 | 0.04 | 6.09 | 0.88 | 6.97 | 1.29 | 0.81 | 2.10 | 5,006.73 |
| Mass Grading Dust | 0.00 | 0.00 | 0.00 | 0.00 | 5.94 | 0.00 | 5.94 | 1.24 | 0.00 | 1.24 | 0.00 |
| Mass Grading Off Road Diesel | 0.43 | 2.40 | 1.59 | 0.00 | 0.00 | 0.13 | 0.13 | 0.00 | 0.12 | 0.12 | 511.88 |
| Mass Grading On Road Diesel | 1.50 | 20.19 | 7.23 | 0.04 | 0.16 | 0.75 | 0.90 | 0.05 | 0.69 | 0.74 | 4,473.34 |
| Mass Grading Worker Trips | 0.00 | 0.01 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 21.51 |

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 2/3/2014 - 9/3/2014 - Site Grading

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:
PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:
PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:
PM10: 55% PM25: 55%

For Graders, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Water Trucks, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Excavators, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Skid Steer Loaders, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

For Crawler Tractors, the Diesel Oxidation Catalyst 30% mitigation reduces emissions by:
NOX: 30%

APPENDIX 9

*CALIFORNIA GNATCATCHER SURVEYS;
QUINO CHECKERSPOT BUTTERFLY; HERMES COPPER BUTTERFLY*

APPENDIX 9A

California Gnatcatcher



**JAMUL RANCHERIA ACCESSS PROJECT
ROADWAYS AND PROPOSED ROUTES
JAMUL, SAN DIEGO COUNTY, CALIFORNIA**

**COASTAL CALIFORNIA GNATCATCHER
(*POLIOPTILA CALIFORNICA CALIFORNICA*)
PRESENCE/ABSENCE SURVEY**

Study Area 3 (20 acres) Lat, Long: 32.707094, -116.870897

Prepared for

Joe Broadhead
Environmental Data Systems, Inc.
1007 7th Street, Suite 308 Sacramento CA 95814
jbroadhead@edatcorp.net

Prepared by

Michael U. Evans
Pacific Southwest Biological Services, Inc.
Post Office Box 985
National City CA 91951-0985
Telephone (619) 477-5333
Facsimile (619) 477-5380
E-mail: bio@psbs.com

PSBS # T707E

May 12, 2011

Michael U. Evans, M. Sc., Permittee
Sec.10. (a)(1)(A) permit # TE830219-3

**JAMUL ACCESSS PROJECT
JAMUL RANCHERIA ACCESSS PROJECT
ROADWAYS AND PROPOSED ROUTES
JAMUL, SAN DIEGO COUNTY, CALIFORNIA
STUDY AREA 3 (20 ACRES)**

**COASTAL CALIFORNIA GNATCATCHER
(*POLIOPTILA CALIFORNICA CALIFORNICA*)
PRESENCE/ABSENCE SURVEY**

Summary

A presence/absence survey for the Threatened California Gnatcatcher (*Polioptila californica californica*) (Gnatcatcher) was performed on three different parcels in close proximity: on a 4-acre parcel (abandoned fire station site), a 6-acre parcel (Jamul Rancheria) and a separate area proposed for a road corridor (approximately 20-acres, most of which is paved—see attached study area maps). At the request of the project client, Dr. Joe Broadhead of Environmental Data Systems, a separate report for each of the three parcels has been created, including the following parcels/areas: This report addresses portions of the 20-acre parcel (approximate location [Lat, Long]: 32.707094, -116.870897), including areas adjacent to Campo Road/State Route (SR) 94 offsite from the parcel itself.

This survey was carried out according the protocol for such surveys for the Coastal California Gnatcatcher established by the U. S. Fish and Wildlife Service (Service 1997). Gnatcatchers were not detected from or within this parcel.

Purpose of the Study

The purpose of the survey was to determine if the Coastal California Gnatcatcher is present within the study area.

Project Location

This report addresses portions of the 20-acre parcel and includes an irregular polygon, mostly along both sides of Campo Road (SR 94), generally from Short Court to the north (approximately 1,550 ft north of Melody Rd, Lat, Long = 32.711378, -116.87093) to an area approximately 2,880 ft south of Melody Rd), to about Lat, Long = 32.700897, -116.86493; also along Melody Rd, approximately 1,035 ft east of the intersection of Melody Rd and Campo Rd, at a point at approximately Lat, Long = 32.706801, -116.87420, and an irregular corridor traversing from that point, south of Melody Rd, and then east to Campo Road at the 4-acre parcel previously described.

Project Description

No specific project has been defined at this time.

Survey Methods

Biologist Michael U. Evans (Endangered Species Act, Sec.10. (a)(1)(A) permit # TE830219-3) performed the survey, which was carried out according to Service California Gnatcatcher presence/absence survey protocol (Service 1997). The survey schedule and field conditions during the field visits are summarized below.

| DATE | TIME | FIELD CONDITIONS |
|---------|-----------|---|
| 4/17/11 | 0745-0900 | 52.70-56.8°F, dense fog to sunny haze, <5% clouds, wind 1.7 mph (SW) to 2.7 mph (W) |
| 4/27/11 | 0900-1045 | 67.5-69°F, sunny, wind 2 mph (W) |
| 5/5/11 | 0810-0945 | 76-86.5°F, 10% cloud cover, wind 0.9-0 mph from (SW) |

Field methods consisted of walking slowly through appropriate habitat (or watching from adjacent viewpoints) while watching and listening for wildlife, as described by the protocol (Service 1997). A taped vocalization of the Gnatcatcher was occasionally played. “Pishing,” a technique commonly used to attract the interest of passerines and draw them into view, was occasionally employed. Binoculars (10x40) were used to assist in the detection and identification of wildlife. Generally, wildlife detected was recorded in written field notes, augmented by notation with software on an Apple iPhone with GPS capabilities, which allowed recordation of the locations and numbers of various species observed (Birdwatcher’s Diary by Stevens Creek Software). The site was of such size that the entire property could be covered on each visit, although routes taken were not identical.

Definitions

Vegetation Communities

Vegetation habitats or communities are assemblages of plant species that usually coexist in the same area. The classification of vegetation communities is based upon the life form of the dominant species within the community and the associated flora. Nomenclature for vegetation communities follows Holland’s Preliminary Descriptions of the Terrestrial Natural Communities of California (1986), as modified by Oberbauer (1996).

Species Nomenclature

The scientific nomenclature used in this report is from the following standard references: vascular plants (Beauchamp 1986, Hickman 1993); vegetation communities (Holland 1986, Oberbauer 1996); birds (American Ornithologists’ Union 1998 and Chesser, et al 2010); and mammals (Jameson and Peeters 2004).

Survey Results

Site Physiography

Geology mapped for the area of the road and routes is Mesozoic granodioritic rocks in the northern portion of the study area and Jurassic-Triassic Metavolcanic rocks in the southern portion (Strand 1962).

The soils mapped for the area are: Las Posas fine sandy loam, 15 to 30 percent slopes (LpE2) in the village area, Las Posas fine sandy loam, 5 to 9 percent (LpC2) in the eastern annual grassland area, Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes (CmrG) in the western portion of the northwestern parcel, Exchequer rocky silt loam, 30 to 70 percent (ExG) at the southern end of the northwestern parcel, Fallbrook sandy loam, 15 to 30 percent

slopes, eroded (FaE2) in the northwestern and northern parcels, Wyman loam, 5 to 9 percent slope (WmC) in the field north of Melody Road, and Ramona sandy loam, 5 to 9 percent slopes eroded (RaC2) in the north western parcel (Bowman 1973). The elevation range of the parcels is 1139 feet at the southwestern peak and 873 feet at the downstream end of the drainage through the village.

Rainfall prior to the survey was above normal rainfall averages for the 2010 – 2011 season.

Botanical Resources

Vegetation Communities

The site consists of an Indian Reservation with temporary office buildings placed near former residential structures, which have been removed. Additionally, the historic Saint Francis Xavier cemetery and associated building exist on the site. Cattle are actively grazing on a large penned field that includes remnant scattered Coast Live Oaks and a discrete Oak Riparian Woodland that runs through the northern portion of the property east from Melody Road, generally fronting on SR94. The results of heavy grazing have created a savanna-like habitat on the majority of the property with scattered oaks and boulders that are not typical habitat for California Gnatcatchers because of the absence of shrubs, particularly *Artemisia californica* and Flattop Buckwheat, which typically support Gnatcatchers.

Coastal Sage Scrub

The open field area has a very disturbed remnant of Coastal Sage Scrub elements, i.e., Flat-top Buckwheat/California Sagebrush and Laurel-leaf Sumac. Past and current cattle grazing has destroyed the structural nature of this vegetation, leaving a field of scattered, isolated shrubs amidst open areas charged with manure and a thriving infestation of Filaree (*Erodium moschatum*).

Riparian Woodland

The principal drainage through the northern and northwestern parcel has a woodland of Arroyo and Black Willows (*Salix lasiolepis*, *S. gooddingii*), along with Coast Live and Engelmann Oaks (*Quercus agrifolia*, *Q. engelmannii*). The woodland varies in its width, from a narrow 5-foot wide channel to a luxuriant woodland 90-feet wide. The understory has been sterilized by the cattle grazing. The area of the crossing is limited to Coast Live Oaks and Black Willow.

Mule-fat Scrub

One of the reaches of the drainages on the open field in the area of the proposed route crossing has a depauperate cover of Mule-fat (*Baccharis salicifolia*) and lies upstream of the more diverse Willow Riparian Woodland.

Disturbed/Developed Areas

The majority of the habitat within the 10-foot wide zone observed along State Route 94 and Melody Lane is highly disturbed by road maintenance activities. Most of the plants are non-native annuals.

Zoological Resources

Fauna

The fauna observed (combined from all three survey areas) reflected those typically found in the southern coastal foothills of San Diego County, in the location habitats in early spring (see Appendix 1). These included one amphibian, five species of reptiles, 39 species of birds and four species of mammals

Sensitive Fauna

No fauna on the federal or California endangered or threatened species lists were observed (no Coastal California Gnatcatchers were observed).

Discussion

Three presence/absence Gnatcatcher surveys were conducted by federally-permitted biologists on the Jamul Rancheria Tribal lands and/or adjacent areas in 2000, 2001 and 2006. These surveys did not reveal any Gnatcatchers on the project site or on Tribal lands. However, the 2001 survey did reveal two Gnatcatchers in the Ecological Reserve adjacent to the southern boundary of project site. Examination of the habitats on the Tribal lands and on the adjacent Ecological Reserve was made (Pacific Southwest 2002) to determine potential habitat suitability for Gnatcatcher and to determine any potential indirect impact to Gnatcatchers from the construction and use of the proposed project. The investigation revealed potential habitat for the Gnatcatcher within 50 feet of the proposed project site. A single male Gnatcatcher was observed on 29 November 2006 and two Gnatcatchers were observed on 6 December 2006 on Reserve lands south of the Rancheria village (Figure 3). No Gnatcatchers were observed on 13 December, although it is assumed they were still present. All the Gnatcatcher observations were approximately 800 feet south of the village boundary and within the confluence of several shallow drainages; south of the Coast Live Oak Riparian Forest mentioned above. The location was recorded on a Global Positioning System (GPS) receiver as: 32.70076° N; -116.87001° W [NAD 83]. The two Gnatcatchers were seen together and identified as male (with male plumage characteristics) and a female (identified by the predominance of brown wash in the back and lower flanks). The pair was found in sparse Flat-top Buckwheat, Coast Sagebrush, Spiny Redberry (*Rhamnus crocea*), California Everlasting (*Gnaphalium californicum*), and Fennel (*Foeniculum vulgare*), where Diegan Coastal Sage Scrub transitions to Non-native Grassland (32.70076, -116.87001).

During the present survey, the margins of the survey area were also carefully surveyed for Gnatcatchers and none were detected. It is concluded that Gnatcatchers are not on the surveyed area or on the immediately surrounding areas.

Certification

I hereby certify that the statements furnished above and in attached exhibits present the data and information required by the Service protocol for a presence/absence survey for the Coastal California Gnatcatcher (*Poliophtila californica californica*) and that the facts, statements and information presented here are true and correct to the best of my knowledge and belief.

DATE: May 12, 2011

SIGNED

A handwritten signature in black ink, appearing to read "Michael U. Evans", written in a cursive style.

Michael U. Evans

Sec.10. (a)(1)(A) permit # TE830219-3

References

- American Ornithologists' Union. 1998. Checklist of North American Birds. Seventh Edition. American Ornithologists Union. 829 pp.
- American Ornithologists' Union. 2009. Fiftieth Supplement to the American Ornithologists' Union Check-list of North American Birds. *Auk* 126(3): 705-714.
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- (CDFG) California Department of Fish and Game. 2002. California Natural Diversity Data Base. State and Federally Listed Endangered and Threatened Animals of California. January 2002.
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Appendix A. Observed Species List – Fauna**INVERTEBRATES****Lepidoptera (Butterflies and Moths)**Nymphalidae --Brush-footed Butterflies

| | |
|----------------|--------------------------|
| Mourning Cloak | <i>Nymphalis antiopa</i> |
|----------------|--------------------------|

Pieridae--Whites, Sulfurs, Marbles, and Orange-tips

| | |
|----------------|-------------------------|
| Common White | <i>Pontia protodice</i> |
| Sara Orangetip | <i>Anthocharis sara</i> |

Hymenoptera (Ants, Wasps and Bees)Formicariidae--Ants

| | |
|--------------------------|----------------------------------|
| California Harvester Ant | <i>Pogonomyrmex californicus</i> |
|--------------------------|----------------------------------|

AMPHIBIANSBufo--True Toads

| | |
|--------------|--------------------|
| Western Toad | <i>Bufo boreas</i> |
|--------------|--------------------|

REPTILESPhrynosomatidae --North American spiny lizards

| | |
|----------------------|--------------------------------|
| Granite Spiny Lizard | <i>Sceloporus orcutti</i> |
| Western Fence Lizard | <i>Sceloporus occidentalis</i> |
| Side-blotched Lizard | <i>Uta stansburiana</i> |

Teiidae (Whiptails and Relatives)

| | |
|--------------------------|--------------------------------|
| Orange-throated Whiptail | <i>Aspidoscelis hyperythra</i> |
|--------------------------|--------------------------------|

BIRDS**Anseriformes - Screamers, Swans, Geese, and Ducks**Anatidae - Ducks, Geese, and Swans

| | |
|----------|---------------------------|
| *Mallard | <i>Anas platyrhynchos</i> |
|----------|---------------------------|

Falconiformes - American Vultures and Diurnal Birds of PreyCathartidae - New World Vultures

| | |
|----------------|-----------------------|
| Turkey Vulture | <i>Cathartes aura</i> |
|----------------|-----------------------|

Accipitridae - Hawks, Kites, Eagles, and Allies

| | |
|---------------------|---------------------------|
| Cooper's Hawk | <i>Accipiter cooperii</i> |
| Red-shouldered Hawk | <i>Buteo lineatus*</i> |
| Red-tailed Hawk | <i>Buteo jamaicensis</i> |

Columbiformes - Pigeons, and DovesColumbidae - Pigeons and Doves

| | |
|---------------|-------------------------|
| Mourning Dove | <i>Zenaida macroura</i> |
|---------------|-------------------------|

Cuculiformes - Cuckoos and AlliesCuculidae - Cuckoos, Roadrunners, and Anis

| | |
|--------------------|--------------------------------|
| Greater Roadrunner | <i>Geococcyx californianus</i> |
|--------------------|--------------------------------|

Appendix A. Observed Species List – Fauna (continued)**Apodiformes - Swifts, and Hummingbirds**Apodidae - Swifts

| | |
|----------------------|-----------------------------|
| White-throated Swift | <i>Aeronautes saxatalis</i> |
|----------------------|-----------------------------|

Trochilidae - Hummingbirds

| | |
|--------------------|---------------------|
| Anna's Hummingbird | <i>Calypte anna</i> |
|--------------------|---------------------|

| | |
|---------------------|-----------------------|
| Costa's Hummingbird | <i>Calypte costae</i> |
|---------------------|-----------------------|

Piciformes - Puffbirds, Jacamars, Toucans, Woodpeckers, and AlliesPicidae - Woodpeckers and Allies

| | |
|----------------------|---------------------------|
| Nuttall's Woodpecker | <i>Picoides nuttallii</i> |
|----------------------|---------------------------|

Passeriformes - Passerine BirdsTyrannidae - Tyrant Flycatchers

| | |
|--------------|---------------------------|
| Black Phoebe | <i>Sayornis nigricans</i> |
|--------------|---------------------------|

| | |
|--------------|----------------------|
| Say's Phoebe | <i>Sayornis saya</i> |
|--------------|----------------------|

| | |
|-------------------------|------------------------------|
| Ash-throated Flycatcher | <i>Myiarchus cinerascens</i> |
|-------------------------|------------------------------|

| | |
|-------------------|----------------------------|
| Cassin's Kingbird | <i>Tyrannus vociferans</i> |
|-------------------|----------------------------|

| | |
|------------------|----------------------------|
| Western Kingbird | <i>Tyrannus verticalis</i> |
|------------------|----------------------------|

Corvidae - Crows and Jays

| | |
|-------------------|-------------------------------|
| Western Scrub-Jay | <i>Aphelocoma californica</i> |
|-------------------|-------------------------------|

| | |
|---------------|------------------------------|
| American Crow | <i>Corvus brachyrhynchos</i> |
|---------------|------------------------------|

| | |
|--------------|---------------------|
| Common Raven | <i>Corvus corax</i> |
|--------------|---------------------|

Hirundinidae - Swallows

| | |
|---------------|---------------------------------|
| Cliff Swallow | <i>Petrochelidon pyrrhonota</i> |
|---------------|---------------------------------|

Aegithalidae - Long-tailed Tits and Bushtits

| | |
|---------|------------------------------|
| Bushtit | <i>Psaltiriparus minimus</i> |
|---------|------------------------------|

Troglodytidae - Wrens

| | |
|---------------|----------------------------|
| Bewick's Wren | <i>Thryomanes bewickii</i> |
|---------------|----------------------------|

| | |
|------------|--------------------------|
| House Wren | <i>Troglodytes aedon</i> |
|------------|--------------------------|

Turdidae - Thrushes

| | |
|------------------|------------------------|
| Western Bluebird | <i>Sialia mexicana</i> |
|------------------|------------------------|

Timaliidae - Babblers

| | |
|---------|-------------------------|
| Wrentit | <i>Chamaea fasciata</i> |
|---------|-------------------------|

Mimidae - Mockingbirds and Thrashers

| | |
|----------------------|--------------------------|
| Northern Mockingbird | <i>Mimus polyglottos</i> |
|----------------------|--------------------------|

Sturnidae - Starlings

| | |
|-------------------|-------------------------|
| European Starling | <i>Sturnus vulgaris</i> |
|-------------------|-------------------------|

Parulidae - Wood-Warblers

| | |
|-----------------------|---------------------------|
| Yellow-rumped Warbler | <i>Dendroica coronata</i> |
|-----------------------|---------------------------|

| | |
|----------------|-------------------------------|
| Hermit Warbler | <i>Dendroica occidentalis</i> |
|----------------|-------------------------------|

| | |
|----------------------|-----------------------|
| Yellow-breasted Chat | <i>Icteria virens</i> |
|----------------------|-----------------------|

Appendix A. Observed Species List – Fauna (continued)Emberizidae - Emberizids

| | |
|------------------------|--------------------------------|
| Spotted Towhee | <i>Pipilo maculatus</i> |
| California Towhee | <i>Pipilo crissalis</i> |
| Lark Sparrow | <i>Chondestes grammacus</i> |
| Song Sparrow | <i>Melospiza melodia</i> |
| Lincoln's Sparrow | <i>Melospiza lincolnii</i> |
| White-crowned Sparrow | <i>Zonotrichia leucophrys</i> |
| Golden-crowned Sparrow | <i>Zonotrichia atricapilla</i> |

Cardinalidae - Cardinals and Allies

| | |
|-----------------------|----------------------------------|
| Black-headed Grosbeak | <i>Pheucticus melanocephalus</i> |
| Lazuli Bunting | <i>Passerina amoena</i> |

Icteridae - Blackbirds

| | |
|------------------|---------------------------|
| Hooded Oriole | <i>Icterus cucullatus</i> |
| Bullock's Oriole | <i>Icterus bullockii</i> |

Fringillidae - Fringilline and Cardueline Finches and Allies

| | |
|------------------|-----------------------------|
| House Finch | <i>Carpodacus mexicanus</i> |
| Lesser Goldfinch | <i>Spinus psaltria</i> |

MAMMALSLeporidae--Rabbits and Hares

| | |
|-------------------|-----------------------------|
| Desert Cottontail | <i>Sylvilagus audubonii</i> |
|-------------------|-----------------------------|

Sciuridae--Squirrels, Chipmunks, and Marmots

| | |
|----------------------------|------------------------------|
| California Ground Squirrel | <i>Spermophilus beecheyi</i> |
|----------------------------|------------------------------|

Geomyidae--Pocket Gophers

| | |
|-----------------------|------------------------|
| Botta's Pocket Gopher | <i>Thomomys bottae</i> |
|-----------------------|------------------------|

Canidae--Foxes, Wolves, and Relatives

| | |
|--------|----------------------|
| Coyote | <i>Canis latrans</i> |
|--------|----------------------|

PSBS# T 707E

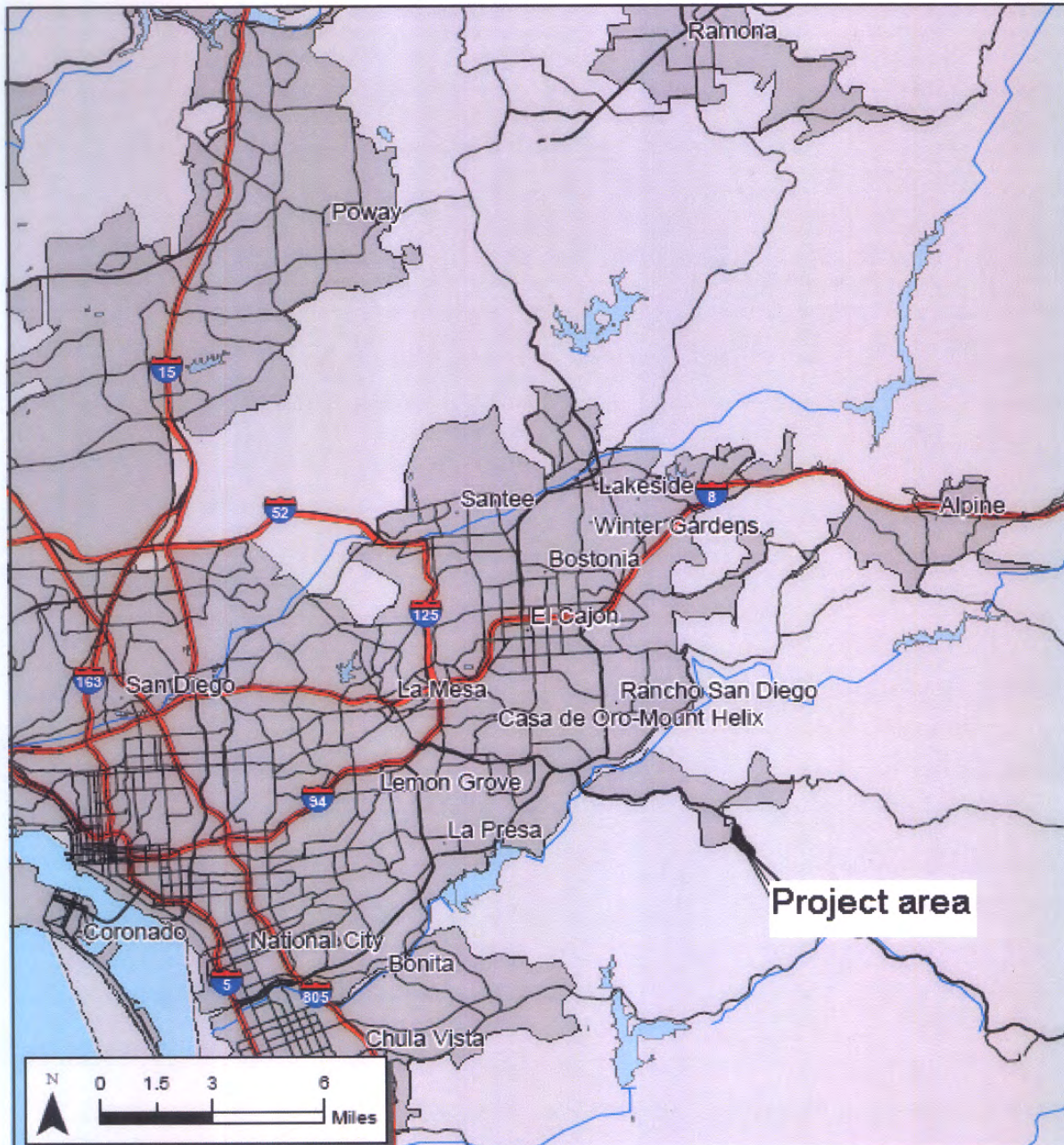


Figure 1.
Jamul Project Sites



4-23-11

MAP SOURCE: DELORME 3-D TOPO QUADS

PACIFIC SOUTHWEST BIOLOGICAL SERVICES, INC.

PSBS# T 707E



Figure 2.
Jamul Routes and Roads





**JAMUL RANCHERIA ACCESSS PROJECT
JAMUL, SAN DIEGO COUNTY, CALIFORNIA**

**COASTAL CALIFORNIA GNATCATCHER
(*POLIOPTILA CALIFORNICA CALIFORNICA*)
PRESENCE/ABSENCE SURVEY**

Study Area 1 (4 acres) Lat, Long: 32.703980, -116.868728

Prepared for

Joe Broadhead
Environmental Data Systems, Inc.
1007 7th Street, Suite 308 Sacramento CA 95814
jbroadhead@edatcorp.net

Prepared by

Michael U. Evans
Pacific Southwest Biological Services, Inc.
Post Office Box 985
National City CA 91951-0985
Telephone (619) 477-5333
Facsimile (619) 477-5380
E-mail: bio@psbs.com

PSBS # T707E

May 12, 2011

Michael U. Evans, M. Sc., Permittee
Sec.10. (a)(1)(A) permit # TE830219-3

**JAMUL RANCHERIA ACCESSS PROJECT
JAMUL, SAN DIEGO COUNTY, CALIFORNIA
STUDY AREA 1 (4 ACRES)**

**COASTAL CALIFORNIA GNATCATCHER
(*POLIOPTILA CALIFORNICA CALIFORNICA*)
PRESENCE/ABSENCE SURVEY**

Summary

A presence/absence survey for the Threatened California Gnatcatcher (*Polioptila californica californica*) (Gnatcatcher) was performed on three different parcels in close proximity: on a 4-acre parcel (abandoned fire station site), a 6-acre parcel (Jamul Rancheria) and a separate area proposed for a road corridor (approximately 20-acres, most of which is paved). At the request of the project client, Dr. Joe Broadhead of Environmental Data Systems, a separate report for each of the three parcels has been created, including the following parcels/areas: This report addresses the 4-acre parcel (approximate location [Lat, Long]: 32.703980, -116.868728), which is the site of the former fire station (since rebuilt across SR94).

This survey was carried out according the protocol for such surveys for the Coastal California Gnatcatcher established by the U. S. Fish and Wildlife Service (Service 1997). Gnatcatchers were not detected within or from this parcel.

Purpose of the Study

The purpose of the survey was to determine if the Coastal California Gnatcatcher is present within the study area.

Project Location

This report addresses the 4-acre parcel, at approximate Latitude, Longitude: 32.703980, -116.868728, is the site of the previous Jamul rural protection district fire station, since demolished. This site is adjacent and to the west of State Route 94 (aka Campo Road), between Melody Road to the north (and Peaceful Valley Ranch Road, which serves the new fire station) and the access road to the Jamul Rancheria and Saint Francis Xavier Cemetery to the immediate south. The site is located in the unincorporated community of Jamul, San Diego County, California. Remnants of the concrete building floors and driveways as well as non-native landscaping still occur on the site.

Project Description

No specific project has been defined at this time.

Survey Methods

Biologist Michael U. Evans (Endangered Species Act, Sec.10. (a)(1)(A) permit # TE830219-3) performed the survey, which was carried out according to Service California Gnatcatcher presence/absence survey protocol (Service 1997). The survey schedule and field conditions during the field visits are summarized below.

| DATE | TIME* | FIELD CONDITIONS |
|---------|-----------|---|
| 4/12/11 | 0845-1000 | 62.1-63.9°F, sunny haze, no clouds, wind 1.7 mph (SW) to <0.5 mph |
| 4/21/11 | 0830-0930 | 63.4-62.4°F, sunny, wind 1-2.3 mph (W) |
| 4/28/11 | 0900-1030 | 75°F, 0% cloud cover, wind 0.6 mph |

*Note that survey times for this parcel were combined with the larger 6-acre parcel surveys (Study Area 2).

Field methods consisted of walking slowly through appropriate habitat (or watching from adjacent viewpoints) while watching and listening for wildlife, as described by the protocol (Service 1997). A taped vocalization of the Gnatcatcher was occasionally played. “Pishing,” a technique commonly used to attract the interest of passerines and draw them into view, was occasionally employed. Binoculars (10x40) were used to assist in the detection and identification of wildlife. Generally, wildlife detected was recorded in written field notes, augmented by notation with software on an Apple iPhone with GPS capabilities, which allowed recordation of the locations and numbers of various species observed (Birdwatcher’s Diary by Stevens Creek Software). The site was of such size that the entire property could be covered on each visit, although routes taken were not identical.

Definitions

Vegetation Communities

Vegetation habitats or communities are assemblages of plant species that usually coexist in the same area. The classification of vegetation communities is based upon the life form of the dominant species within the community and the associated flora. Nomenclature for vegetation communities follows Holland’s Preliminary Descriptions of the Terrestrial Natural Communities of California (1986), as modified by Oberbauer (1996).

Species Nomenclature

The scientific nomenclature used in this report is from the following standard references: vascular plants (Beauchamp 1986, Hickman 1993); vegetation communities (Holland 1986, Oberbauer 1996); birds (American Ornithologists’ Union 1998 and Chesser, et al 2010); and mammals (Jameson and Peeters 2004).

Survey Results

Site Physiography

Geology mapped for the area of the road and routes is Mesozoic granodioritic rocks in the northern portion of the study area and Jurassic-Triassic Metavolcanic rocks in the southern portion (Strand 1962).

The soils mapped for the area are: Las Posas fine sandy loam, 15 to 30 percent slopes (LpE2) in the village area, Las Posas fine sandy loam, 5 to 9 percent (LpC2) in the eastern annual grassland area, Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes (CmrG) in the western portion of the northwestern parcel, Exchequer rocky silt loam, 30 to 70 percent (ExG) at the southern end of the northwestern parcel, Fallbrook sandy loam, 15 to 30 percent slopes, eroded (FaE2) in the northwestern and northern parcels, Wyman loam, 5 to 9 percent slope (WmC) in the field north of Melody Road, and Ramona sandy loam, 5 to 9 percent slopes eroded (RaC2) in the north western parcel (Bowman 1973). The elevation range of the parcels is 1139 feet at the southwestern peak and 873 feet at the downstream end of the drainage through the village.

Rainfall prior to the survey was above normal rainfall averages for the 2010 – 2011 season.

Botanical Resources

Vegetation Communities

Disturbed Areas

Areas of the parcel formerly occupied by the fire station and associated structures include paved areas and persisting landscaping.

Non-native Grassland

The southern, majority of the parcel is covered with non-native grasses, largely bromes and wild oats. The small knoll at the southeast corner has persisting Purple Needlegrass (*Nassella pulchra*), suggesting a cover of native grassland prior to the grazing and disturbance of the site.

Zoological Resources

Fauna

The fauna observed reflected those typically found in the southern coastal foothills of San Diego County, in the location habitats in early spring (see Appendix 1). These included one amphibian, five species of reptiles, 39 species of birds and four species of mammals.

Sensitive Fauna

No fauna on the federal or California endangered or threatened species were observed (no Coastal California Gnatcatchers were observed).

Discussion

Because the survey site is the location of a former rural fire station and consist of parts of a paved parking area and driveways and no native shrub vegetation, Gnatcatchers would not be expected to utilize the site. The only wildlife species utilizing the site observed in the native and non-native trees occupying parts of the site.

Certification

I hereby certify that the statements furnished above and in attached exhibits present the data and information required by the Service protocol for a presence/absence survey for the Coastal California Gnatcatcher (*Poliophtila californica californica*) and that the facts, statements and information presented here are true and correct to the best of my knowledge and belief.

DATE: May 12, 2011

SIGNED

A handwritten signature in black ink, reading "Michael U. Evans". The signature is written in a cursive style with a large, sweeping initial "M".

Michael U. Evans

Sec.10. (a)(1)(A) permit # TE830219-3

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Appendix A. Observed Species List – Fauna**INVERTEBRATES****Lepidoptera (Butterflies and Moths)**Nymphalidae --Brush-footed Butterflies

| | |
|----------------|--------------------------|
| Mourning Cloak | <i>Nymphalis antiopa</i> |
|----------------|--------------------------|

Pieridae--Whites, Sulfurs, Marbles, and Orange-tips

| | |
|----------------|-------------------------|
| Common White | <i>Pontia protodice</i> |
| Sara Orangetip | <i>Anthocharis sara</i> |

Hymenoptera (Ants, Wasps and Bees)Formicariidae--Ants

| | |
|--------------------------|----------------------------------|
| California Harvester Ant | <i>Pogonomyrmex californicus</i> |
|--------------------------|----------------------------------|

AMPHIBIANSBufonidae--True Toads

| | |
|--------------|--------------------|
| Western Toad | <i>Bufo boreas</i> |
|--------------|--------------------|

REPTILESPhrynosomatidae --North American spiny lizards

| | |
|----------------------|--------------------------------|
| Granite Spiny Lizard | <i>Sceloporus orcutti</i> |
| Western Fence Lizard | <i>Sceloporus occidentalis</i> |
| Side-blotched Lizard | <i>Uta stansburiana</i> |

Teiidae (Whiptails and Relatives)

| | |
|--------------------------|--------------------------------|
| Orange-throated Whiptail | <i>Aspidoscelis hyperythra</i> |
|--------------------------|--------------------------------|

BIRDS**Anseriformes - Screamers, Swans, Geese, and Ducks**Anatidae - Ducks, Geese, and Swans

| | |
|----------|---------------------------|
| *Mallard | <i>Anas platyrhynchos</i> |
|----------|---------------------------|

Falconiformes - American Vultures and Diurnal Birds of PreyCathartidae - New World Vultures

| | |
|----------------|-----------------------|
| Turkey Vulture | <i>Cathartes aura</i> |
|----------------|-----------------------|

Accipitridae - Hawks, Kites, Eagles, and Allies

| | |
|---------------------|---------------------------|
| Cooper's Hawk | <i>Accipiter cooperii</i> |
| Red-shouldered Hawk | <i>Buteo lineatus*</i> |
| Red-tailed Hawk | <i>Buteo jamaicensis</i> |

Columbiformes - Pigeons, and DovesColumbidae - Pigeons and Doves

| | |
|---------------|-------------------------|
| Mourning Dove | <i>Zenaida macroura</i> |
|---------------|-------------------------|

Cuculiformes - Cuckoos and AlliesCuculidae - Cuckoos, Roadrunners, and Anis

| | |
|--------------------|--------------------------------|
| Greater Roadrunner | <i>Geococcyx californianus</i> |
|--------------------|--------------------------------|

Appendix A. Observed Species List – Fauna (continued)**Apodiformes - Swifts, and Hummingbirds**Apodidae - Swifts

| | |
|----------------------|-----------------------------|
| White-throated Swift | <i>Aeronautes saxatalis</i> |
|----------------------|-----------------------------|

Trochilidae - Hummingbirds

| | |
|--------------------|---------------------|
| Anna's Hummingbird | <i>Calypte anna</i> |
|--------------------|---------------------|

| | |
|---------------------|-----------------------|
| Costa's Hummingbird | <i>Calypte costae</i> |
|---------------------|-----------------------|

Piciformes - Puffbirds, Jacamars, Toucans, Woodpeckers, and AlliesPicidae - Woodpeckers and Allies

| | |
|----------------------|---------------------------|
| Nuttall's Woodpecker | <i>Picoides nuttallii</i> |
|----------------------|---------------------------|

Passeriformes - Passerine BirdsTyrannidae - Tyrant Flycatchers

| | |
|--------------|---------------------------|
| Black Phoebe | <i>Sayornis nigricans</i> |
|--------------|---------------------------|

| | |
|--------------|----------------------|
| Say's Phoebe | <i>Sayornis saya</i> |
|--------------|----------------------|

| | |
|-------------------------|------------------------------|
| Ash-throated Flycatcher | <i>Myiarchus cinerascens</i> |
|-------------------------|------------------------------|

| | |
|-------------------|----------------------------|
| Cassin's Kingbird | <i>Tyrannus vociferans</i> |
|-------------------|----------------------------|

| | |
|------------------|----------------------------|
| Western Kingbird | <i>Tyrannus verticalis</i> |
|------------------|----------------------------|

Corvidae - Crows and Jays

| | |
|-------------------|-------------------------------|
| Western Scrub-Jay | <i>Aphelocoma californica</i> |
|-------------------|-------------------------------|

| | |
|---------------|------------------------------|
| American Crow | <i>Corvus brachyrhynchos</i> |
|---------------|------------------------------|

| | |
|--------------|---------------------|
| Common Raven | <i>Corvus corax</i> |
|--------------|---------------------|

Hirundinidae - Swallows

| | |
|---------------|---------------------------------|
| Cliff Swallow | <i>Petrochelidon pyrrhonota</i> |
|---------------|---------------------------------|

Aegithalidae - Long-tailed Tits and Bushtits

| | |
|---------|------------------------------|
| Bushtit | <i>Psaltiriparus minimus</i> |
|---------|------------------------------|

Troglodytidae - Wrens

| | |
|---------------|----------------------------|
| Bewick's Wren | <i>Thryomanes bewickii</i> |
|---------------|----------------------------|

| | |
|------------|--------------------------|
| House Wren | <i>Troglodytes aedon</i> |
|------------|--------------------------|

Turdidae - Thrushes

| | |
|------------------|------------------------|
| Western Bluebird | <i>Sialia mexicana</i> |
|------------------|------------------------|

Timaliidae - Babblers

| | |
|---------|-------------------------|
| Wrentit | <i>Chamaea fasciata</i> |
|---------|-------------------------|

Mimidae - Mockingbirds and Thrashers

| | |
|----------------------|--------------------------|
| Northern Mockingbird | <i>Mimus polyglottos</i> |
|----------------------|--------------------------|

Sturnidae - Starlings

| | |
|-------------------|-------------------------|
| European Starling | <i>Sturnus vulgaris</i> |
|-------------------|-------------------------|

Parulidae - Wood-Warblers

| | |
|-----------------------|---------------------------|
| Yellow-rumped Warbler | <i>Dendroica coronata</i> |
|-----------------------|---------------------------|

| | |
|----------------|-------------------------------|
| Hermit Warbler | <i>Dendroica occidentalis</i> |
|----------------|-------------------------------|

| | |
|----------------------|-----------------------|
| Yellow-breasted Chat | <i>Icteria virens</i> |
|----------------------|-----------------------|

Appendix A. Observed Species List – Fauna (continued)Emberizidae - Emberizids

| | |
|------------------------|--------------------------------|
| Spotted Towhee | <i>Pipilo maculatus</i> |
| California Towhee | <i>Pipilo crissalis</i> |
| Lark Sparrow | <i>Chondestes grammacus</i> |
| Song Sparrow | <i>Melospiza melodia</i> |
| Lincoln's Sparrow | <i>Melospiza lincolnii</i> |
| White-crowned Sparrow | <i>Zonotrichia leucophrys</i> |
| Golden-crowned Sparrow | <i>Zonotrichia atricapilla</i> |

Cardinalidae - Cardinals and Allies

| | |
|-----------------------|----------------------------------|
| Black-headed Grosbeak | <i>Pheucticus melanocephalus</i> |
| Lazuli Bunting | <i>Passerina amoena</i> |

Icteridae - Blackbirds

| | |
|------------------|---------------------------|
| Hooded Oriole | <i>Icterus cucullatus</i> |
| Bullock's Oriole | <i>Icterus bullockii</i> |

Fringillidae - Fringilline and Cardueline Finches and Allies

| | |
|------------------|-----------------------------|
| House Finch | <i>Carpodacus mexicanus</i> |
| Lesser Goldfinch | <i>Spinus psaltria</i> |

MAMMALSLeporidae--Rabbits and Hares

| | |
|-------------------|-----------------------------|
| Desert Cottontail | <i>Sylvilagus audubonii</i> |
|-------------------|-----------------------------|

Sciuridae--Squirrels, Chipmunks, and Marmots

| | |
|----------------------------|------------------------------|
| California Ground Squirrel | <i>Spermophilus beecheyi</i> |
|----------------------------|------------------------------|

Geomyidae--Pocket Gophers

| | |
|-----------------------|------------------------|
| Botta's Pocket Gopher | <i>Thomomys bottae</i> |
|-----------------------|------------------------|

Canidae--Foxes, Wolves, and Relatives

| | |
|--------|----------------------|
| Coyote | <i>Canis latrans</i> |
|--------|----------------------|

PSBS# T 707E

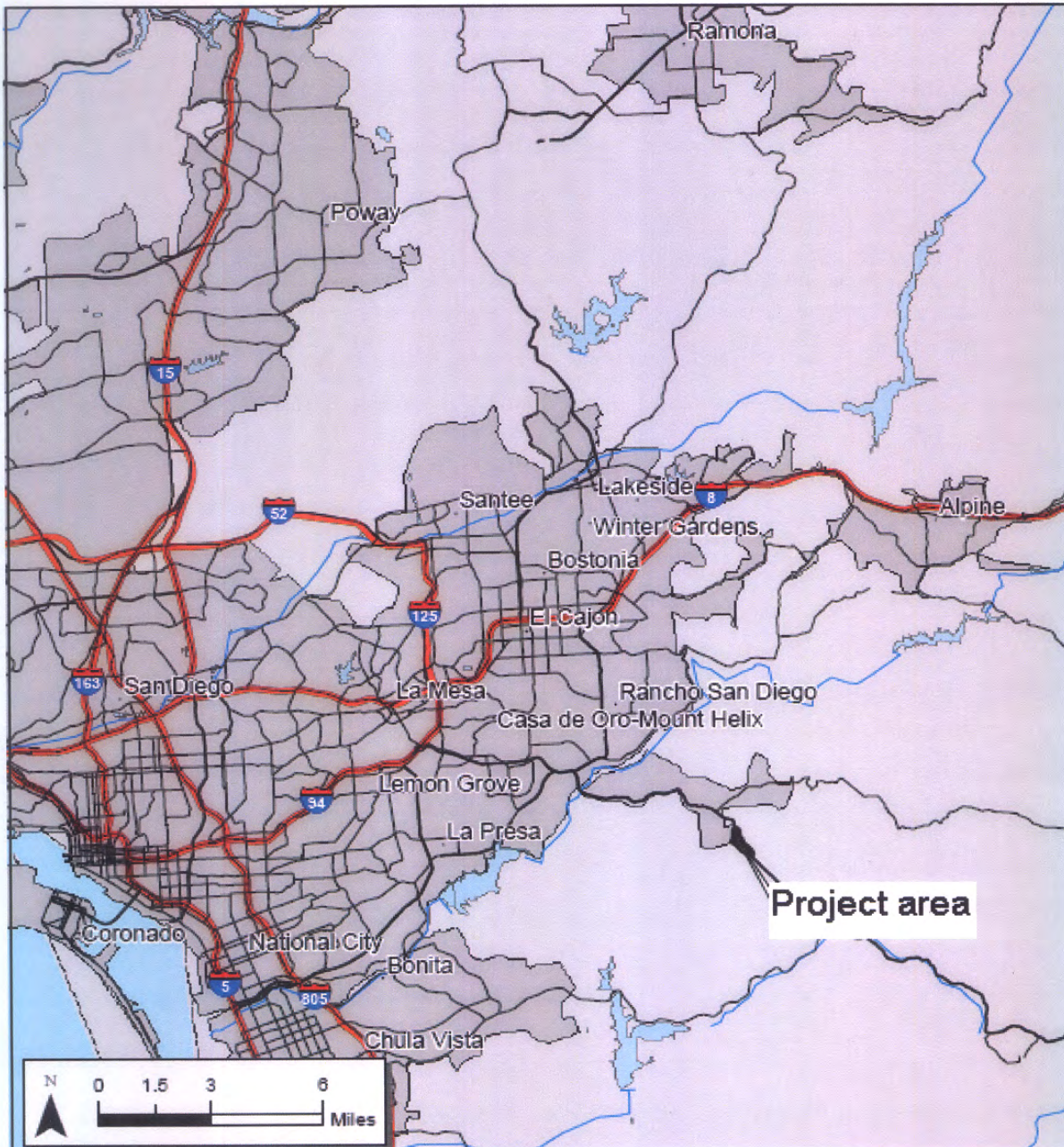


Figure 1.
Jamul Project Sites



4-23-11

MAP SOURCE: DELORME 3-D TOPO QUADS

PACIFIC SOUTHWEST BIOLOGICAL SERVICES, INC.

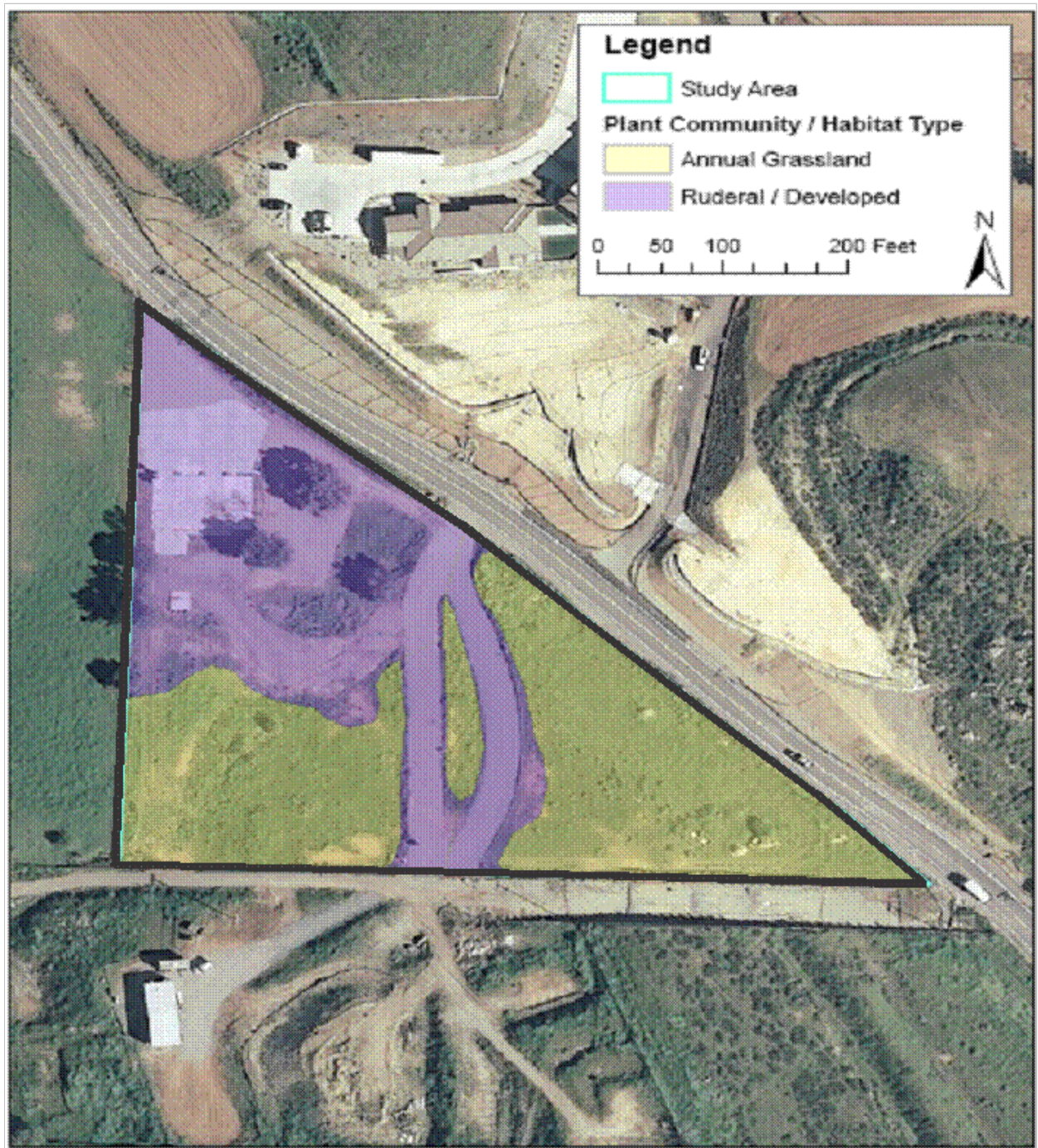


Figure 2.
Jamul Triangle Parcel



APPENDIX 9B

Quino Checkerspot Butterfly

FORENSIC ENTOMOLOGY SERVICES

7 June 2011

5434 Redland Place
San Diego, California 92115-2217
Phone/Fax 619.583.0180

Email: Dkfaulkner41@cox.net

Ted J. Griswold
Procopio, Cory, Hargreaves & Savitch LLP
530 B Street, Suite 2100
San Diego, California 92101

**RE: Quino Checkerspot Surveys, 2011
All Access Alternatives, Jamul Village Site, Jamul
San Diego County, California**

INTRODUCTION

The All Access Alternative parcel was surveyed on the Jamul Village (Rancheria) Site for the presence/absence of the federally listed Quino Checkerspot Butterfly (QCB), *Euphydryas editha quino* during the 2011 adult flight season for western San Diego County. The other two parcels will be addressed separately, but general information applies to all three. The protocol surveys were initiated on 23 March 2011 following over 2 weeks of cool and rainy conditions for San Diego County. Although QCB adults were seen in late February, the later survey dates still included the usual seasonal flight period for this species, with adult QCB being recorded within a few miles of these survey sites the week they were initiated. Habitat conditions were excellent to good during the entire survey period from 23 March until the conclusion on 24 April 2011.

The entire property was assessed for QCB on 21 March 2011 and previously in 2000 and again in 2007. General habitat conditions are similar to what they were following the other assessments. Most of the sites will not support QCB colonies because of a total lack of larval host plants and limited adult butterfly nectar sources and would normally be excluded from protocol surveys except for some of the habitat features present, such as open soils, hilltops, and close proximity to known QCB populations. Given these conditions, adult QCB encounters would still be rare at best. However, this parcel does contain these features along with numerous adult nectar sources and patches of larval host plants.

Survey methods, following the site assessment, required covering less than 10 acres per hour, concentrating on the few physical features that might reveal QCB activity. Other butterfly species encountered were documented along with prevailing weather conditions on each visit. Additional time was spent in areas containing actual QCB habitat that were found during the assessment this year and in 2000 and 2007. The survey season was



terminated with the flowering of buckwheat and the emergence of late season butterfly indicators such as the emergence of Bernardino Blue butterflies.

RESULTS

No adult Quino Checkerspot Butterflies were recorded during the six protocol surveys. This third parcel, referred to as the “All Access Alternatives” site contained rock outcrops, exposed soils, dirt roads, adult nectar sources, ridgelines, and abundant larval host plants (*Plantago erecta*). Larvae detected during the surveys on *Plantago* were buckeye caterpillars and not QCB immatures. Cattle activity on this site had a significant impact on the overall habitat quality.

Table 1 shows the weather conditions during each survey visit while Table 2 lists the other butterfly and skipper species recorded.

Table 1. Survey Dates and Weather Conditions, 2011

| DATE | TIME | WEATHER °F | LOCATION |
|----------|-----------|---------------------------------------|-----------------|
| 21 March | 1200-1600 | 55/60, 50-80% clouds, 2-3mph wind | Site Assessment |
| 23 March | 1330-1630 | 71/68, 0-10% clouds, 3-6mph wind | All 3 Parcels |
| 29 March | 1330-1530 | 75/77, 0-10% high clds., 1-2 mph wind | All 3 Parcels |
| 5 April | 1330-1530 | 77/78, 10-20% high clds., 1-2mph wind | All 3 Parcels |
| 11 April | 1000-1200 | 67/69, 20-30% high clds., 2-6mph wind | All 3 Parcels |
| 17 April | 1230-1430 | 78/79, clear, 2-5mph wind | All 3 Parcels |
| 24 April | 1100-1300 | 66/68, 10% clouds, 3-7mph wind | All 3 Parcels |

Temperatures were a significant factor during the adult QCB survey season throughout San Diego County. This resulted in a delayed and extended flowering season for many annuals used as butterfly nectar sources. The primary QCB larval host plant, *P. erecta*, remained in good condition during the entire survey season and did not begin to dry out until mid-May.

Table 2. Butterfly and Skipper Species

| GENUS/SPECIES | COMMON NAME |
|------------------------------|--------------------------|
| <i>Papilio eurymedon</i> | Pale swallowtail |
| <i>Pieris rapae</i> | Cabbage white |
| <i>Pontia protodice</i> | Checkered white |
| <i>Anthocharis sara</i> | Sara orangetip |
| <i>Colias eurytheme</i> | Orange (Alfalfa) sulphur |
| <i>Callophrys augustinus</i> | Brown elfin |
| <i>C. perplexa</i> | Perplexing hairstreak |

| | |
|------------------------------|--------------------|
| <i>Leptotes marina</i> | Marine blue |
| <i>Plebejus acmon</i> | Acmon blue |
| <i>Apodemia virgulti</i> | Behr's metalmark |
| <i>Chlosyne gabbii</i> | Gabb's checkerspot |
| <i>Nymphalis antiopa</i> | Mourning cloak |
| <i>Euphilotes bernardino</i> | Bernardino blue |
| <i>Vanessa cardui</i> | Painted lady |
| <i>V. annabella</i> | West coast lady |
| <i>V. virginiensis</i> | American lady |
| <i>Junonia coenia</i> | Buckeye |
| <i>Erynnis species</i> | "Duskywing" |
| <i>E. funeralis</i> | Funereal duskywing |
| <i>Hylephila phylus</i> | Fiery skipper |

Only 20 butterfly/skipper species were recorded during the surveys. This lack of diversity, and low abundance, were repeated throughout the county during the QCB flight season. Part of the reason for this was the two weeks of cold and rainy weather conditions during mid-March. Although this extended the season for many annual plants utilized by insects, it also delayed the adult emergence of many species and impacted their relative abundance. Many of the species were found to have extended their adult flight periods, but with lower populations. The colder temperatures began at the beginning of the QCB flight season and probably resulted in delayed emergence and lower numbers of adult insects.

SUMMARY

The habitat quality of this parcel varied based on past and current impacts. These issues are addressed for this property on the Jamul Village Site.

1. **All Access Alternatives.** There is no question that this parcel contains all features necessary for QCB populations. The property supports extensive *Plantago erecta* patches on both north and south facing slopes, hilltops and ridgelines, rock outcrops, adult nectar sources, open soils, and dirt roads. The only significant impact to the property results from cattle that graze within the fenced boundaries of the property. However, the presence of cattle does not appear to prevent QCB from utilizing the habitat as seen from populations on Otay Mesa. For any future impacts to this parcel, further QCB protocol surveys will be required.



David K. Faulkner
Entomologist

USFWS Permit No. TE-838743-5

FORENSIC ENTOMOLOGY SERVICES

7 June 2011

5434 Redland Place
San Diego, California 92115-2217
Phone/Fax 619.583.0180

Email: Dkfaulkner41@cox.net

Ted J. Griswold
Procopio, Cory, Hargreaves & Savitch LLP
530 B Street, Suite 2100
San Diego, California 92101

**RE: Quino Checkerspot Surveys, 2011
4-Acre Parcel, Jamul Village Site, Jamul
San Diego County, California**

INTRODUCTION

The 4-Acre Parcel was surveyed on the Jamul Village (Rancheria) Site for the presence/absence of the federally listed Quino Checkerspot Butterfly (QCB), *Euphydryas editha quino* during the 2011 adult flight season for western San Diego County. All three parcels were surveyed during the same time frame, but are addressed separately. The protocol surveys were initiated on 23 March 2011 following over 2 weeks of cool and rainy conditions for San Diego County. Although QCB adults were seen in late February, the later survey dates still included the usual seasonal flight period for this species, with adult QCB being recorded within a few miles of these survey sites the week they were initiated. Habitat conditions were excellent to good during the entire survey period from 23 March until the conclusion on 24 April 2011.

The entire property was assessed for QCB on 21 March 2011 and previously in 2000 and again in 2007. General habitat conditions are similar to what they were following the other assessments. Most of the sites will not support QCB colonies because of a total lack of larval host plants and limited adult butterfly nectar sources. These sites would normally be excluded from protocol surveys except for some of the habitat features present, such as open soils, hilltops, and close proximity to known QCB populations. Given these conditions, adult QCB encounters would still be rare at best.

Survey methods, following the site assessment, required covering less than 10 acres per hour, concentrating on the few physical features that might reveal QCB activity. Other butterfly species encountered were documented along with prevailing weather conditions on each visit. Additional time was spent in areas containing actual QCB habitat that were found during the assessment this year and in 2000 and 2007. The survey season was terminated with the flowering of buckwheat and the emergence of late season butterfly indicators such as the emergence of Bernardino blues.



RESULTS

No adult Quino Checkerspot Butterflies were recorded during the six protocol surveys, and for two of the parcels, no QCB would have been expected given the limited features on the property.

Table 1 shows the weather conditions during each survey visit while Table 2 lists the other butterfly and skipper species recorded.

Table 1. Survey Dates and Weather Conditions, 2011

| DATE | TIME | WEATHER °F | LOCATION |
|----------|-----------|---------------------------------------|-----------------|
| 21 March | 1200-1600 | 55/60, 50-80% clouds, 2-3mph wind | Site Assessment |
| 23 March | 1330-1630 | 71/68, 0-10% clouds, 3-6mph wind | All 3 Parcels |
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| 17 April | 1230-1430 | 78/79, clear, 2-5mph wind | All 3 Parcels |
| 24 April | 1100-1300 | 66/68, 10% clouds, 3-7mph wind | All 3 Parcels |

Temperatures were a significant factor during the adult QCB survey season throughout San Diego County. This resulted in a delayed and extended flowering season for many annuals used as butterfly nectar sources. The primary QCB larval host plant, *P. erecta*, was not present on the 4-Acre Parcel.

Table 2. Butterfly and Skipper Species

| GENUS/SPECIES | COMMON NAME |
|------------------------------|--------------------------|
| <i>Papilio eurymedon</i> | Pale swallowtail |
| <i>Pieris rapae</i> | Cabbage white |
| <i>Pontia protodice</i> | Checkered white |
| <i>Anthocharis sara</i> | Sara orangetip |
| <i>Colias eurytheme</i> | Orange (Alfalfa) sulphur |
| <i>Callophrys augustinus</i> | Brown elfin |
| <i>C. perplexa</i> | Perplexing hairstreak |
| <i>Leptotes marina</i> | Marine blue |
| <i>Plebejus acmon</i> | Acmon blue |
| <i>Apodemia virgulti</i> | Behr's metalmark |
| <i>Chlosyne gabbii</i> | Gabb's checkerspot |
| <i>Nymphalis antiopa</i> | Mourning cloak |
| <i>Euphilotes bernardino</i> | Bernardino blue |
| <i>Vanessa cardui</i> | Painted lady |
| <i>V. annabella</i> | West coast lady |

| | |
|-------------------------|--------------------|
| <i>V. virginensis</i> | American lady |
| <i>Junonia coenia</i> | Buckeye |
| <i>Erynnis</i> species | "Duskywing" |
| <i>E. funeralis</i> | Funereal duskywing |
| <i>Hylephila phylus</i> | Fiery skipper |

Only 20 butterfly/skipper species were recorded during the surveys. This lack of diversity, and low abundance, were repeated throughout the county during the QCB flight season. Part of the reason for this was the two weeks of cold and rainy weather conditions during mid-March. Although this extended the season for many annual plants utilized by insects, it also delayed the adult emergence of many species and impacted their relative abundance. Many of the species were found to have extended their adult flight periods, but with lower populations. The colder temperatures began at the beginning of the QCB flight season and probably resulted in delayed emergence and lower numbers of adult insects.

SUMMARY

The habitat quality of the three parcels varied based on past and current impacts. The 4-Acre Parcel was the poorest quality habitat surveyed on the Jamul Village Site.

1. **4-Acre Parcel.** This part of the site offered nothing for adult or larval QCB except for the presence of introduced annuals as possible nectar sources. The parcel consists of concrete slabs, paved roads, enclosed grassy fields with extensive filaree and an abundance of other invasive and weedy vegetation. There are no physical features that would attract adult QCB and nothing to promote colonization. Future protocol surveys for QCB would exclude this portion of the property.



David K. Faulkner
Entomologist
USFWS Permit No. TE-838743-5

APPENDIX 9C

Hermes Copper Butterfly

FORENSIC ENTOMOLOGY SERVICES

3 October 2012

5434 Redland Place
San Diego, California 92115-2217
Phone/Fax 619.583.0180
[REDACTED]
Email: Dkfaulkner41@cox.net

Joe Broadhead, Principal
EDS, Inc.
1007 7th Street, Suite 308
Sacramento, California 95814

RE: Hermes Copper Butterfly Surveys, 2011-2012
Jamul Village Site, All-Access Alternatives Parcel, Jamul,
San Diego County, California

INTRODUCTION

Following the completion of protocol surveys for the federally listed Quino Checkerspot Butterfly (QCB) on the All-Access Alternatives Parcel of the Jamul Village Site, additional surveys were conducted for the presence/absence of Hermes Copper Butterfly. This insect, *Lycaena hermes* (Edwards, 1870), was recently listed as a candidate species by the U.S. Fish and Wildlife Service (2011) for the Federal List of Threatened and Endangered Wildlife and Plants. Given the butterfly's current status, surveys are necessary to establish potential habitat and current occupation within the known range of this species. Two site visits were taken to the property, one each in 2011 (14 June) and in 2012 (7 June). Both days occurred after adult Hermes Copper activity was confirmed in San Diego County. Surveys began after 1000 and were concluded around 1500 during adequate weather conditions for adult butterfly activity.

The Hermes Copper Butterfly is a San Diego County endemic within the United States. There are a limited number of records for northwestern Baja California, Mexico. The expected adult flight period is from mid-May through late June, and butterflies are closely associated with their only known larval host plant, Spiny Redberry (*Rhamnus crocea*). Adults will nectar on a variety of flowering plants, but there is a preference for California Buckwheat (*Eriogonum fasciculatum*). Critical to the emergence of Hermes Copper is the amount and timing of winter precipitation and its impact on the larval host plant. Absence or delay in normal rainfall results in limited larval survival as reflected in few surviving adults and a limited flight season. In recent years, this butterfly's known colonies and abundance have been greatly reduced by prevailing weather conditions, habitat fragmentation, fires, and loss of habitat.

RESULTS

No Hermes Copper Butterfly adults were found on the All-Access Alternative Parcel. This was not expected owing to the significant amount of larval host plants along with California buckwheat in both 2011 and 2012. The reason for the absence of Hermes Copper is due to cattle grazing on the larval host plant. Hermes Copper females tend to deposit their eggs more towards the terminal end of the branches on the underside of the leaves. Grazing continually removes these sites both before and after eggs have been deposited.



For all sites, survey dates and weather conditions are given in **Table 1**, and additional butterfly and skipper species recorded are listed in **Table 2**.

Table 1. Survey Dates and Weather Conditions

| DATE | TIME | WEATHER (°F) | LOCATION |
|--------------|-----------|----------------------------|---------------|
| 14 June 2011 | 1130-1500 | 82/82, clear, 1-2 mph wind | All 3 Parcels |
| 7 June 2012 | 1030-1430 | 73/79, clear, 2-5 mph wind | All 3 Parcels |

Temperatures, sunshine, and winds were adequate for adult Hermes Copper activity. Other butterfly species were encountered during the visits.

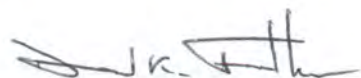
Table 2. Butterfly and Skipper Species (2011-2012)

| FAMILY | GENUS/SPECIES | COMMON NAME | SITE |
|--------------|------------------------------|-------------------|-----------------------|
| Papilionidae | <i>Papilio zelicaon</i> | Anise swallowtail | Rancheria |
| Pieridae | <i>Pieris rapae</i> | Cabbage white | Rancheria, 4-Acre |
| | <i>Pontia protodice</i> | Checkered white | 4-Acre, All-Access |
| Lycaenidae | <i>Strymon melinus</i> | Gray hairstreak | Rancheria, All-Access |
| | <i>Euphilotes bernardino</i> | Bernardino blue | All-Access |
| | <i>Leptotes marina</i> | Marine blue | Rancheria |
| | <i>Plebejus acmon</i> | Acmon blue | 4-Acre, All-Access |
| Riodinidae | <i>Apodemia virgulti</i> | Behr's metalmark | All-Access |
| Nymphalidae | <i>Junonia coenia</i> | Buckeye | Rancheria, All-Access |
| | <i>Vanessa virginensis</i> | American lady | Rancheria, All-Access |
| | <i>V. annabella</i> | West coast lady | Rancheria, 4-Acre |

No skippers were recorded during the brief visit and seven butterfly species were encountered, all of which were observed both years. The site continues to be grazed and reduces the amount of available adult butterfly nectar sources, especially native vegetation. The site currently supports abundant invasive vegetation such as *Erodium*, grasses, and mustard.

CONCLUSION

Owing to the grazing impact on existing larval host plants, Hermes Copper Butterfly is currently not present on the All-Access Alternatives Parcel and would not be expected to colonize from other off-site populations unless cattle grazing is reduced, restricted, or eliminated from the property.



David K. Faulkner
Entomologist
USFWS Permit #TE-838743-5

FORENSIC ENTOMOLOGY SERVICES

3 October 2012

5434 Redland Place
San Diego, California 92115-2217
Phone/Fax 619.583.0180

Email: Dkfaulkner41@cox.net

Joe Broadhead, Principal
EDS, Inc.
1007 7th Street, Suite 308
Sacramento, California 95814

RE: Hermes Copper Butterfly Surveys, 2011-2012
Jamul Village Site, Rancheria Parcel, Jamul,
San Diego County, California

INTRODUCTION

Following the completion of protocol surveys for the federally listed Quino Checkerspot Butterfly (QCB) on the Rancheria Parcel of the Jamul Village Site, additional surveys were conducted for the presence/absence of Hermes Copper Butterfly. This insect, *Lycaena hermes* (Edwards, 1870), was recently listed as a candidate species by the U.S. Fish and Wildlife Service (2011) for the Federal List of Threatened and Endangered Wildlife and Plants. Given the butterfly's current status, surveys are necessary to establish potential habitat and current occupation within the known range of this species. Two site visits were taken to the property, one each in 2011 (14 June) and in 2012 (7 June). Both days occurred after adult Hermes Copper activity was confirmed in San Diego County. Surveys began after 1000 and were concluded around 1500 during adequate weather conditions for adult butterfly activity.

The Hermes Copper Butterfly is a San Diego County endemic within the United States. There are a limited number of records for northwestern Baja California, Mexico. The expected adult flight period is from mid-May through late June, and butterflies are closely associated with their only known larval host plant, Spiny Redberry (*Rhamnus crocea*). Adults will nectar on a variety of flowering plants, but there is a preference for California Buckwheat (*Eriogonum fasciculatum*). Critical to the emergence of Hermes Copper is the amount and timing of winter precipitation and its impact on the larval host plant. Absence or delay in normal rainfall results in limited larval survival as reflected in few surviving adults and a limited flight season. In recent years, this butterfly's known colonies and abundance have been greatly reduced by prevailing weather conditions, habitat fragmentation, fires, and loss of habitat.

RESULTS

No Hermes Copper Butterfly adults were found on the Rancheria Parcel. This would be expected due to the total absence of the larval host plant and limited California buckwheat in 2011 and 2012. There is currently no habitat available to support colonies of Hermes Copper on this site.

For all sites, survey dates and weather conditions are given in **Table 1**, and additional butterfly and skipper species recorded are listed in **Table 2**.



Table 1. Survey Dates and Weather Conditions

| DATE | TIME | WEATHER (°F) | LOCATION |
|--------------|-----------|----------------------------|---------------|
| 14 June 2011 | 1130-1500 | 82/82, clear, 1-2 mph wind | All 3 Parcels |
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Temperatures, sunshine, and winds were adequate for adult Hermes Copper activity. Other butterfly species were encountered during the visits.

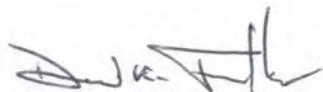
Table 2. Butterfly and Skipper Species (2011-2012)

| FAMILY | GENUS/SPECIES | COMMON NAME | SITE |
|--------------|------------------------------|-------------------|-----------------------|
| Papilionidae | <i>Papilio zelicaon</i> | Anise swallowtail | Rancheria |
| Pieridae | <i>Pieris rapae</i> | Cabbage white | Rancheria, 4-Acre |
| | <i>Pontia protodice</i> | Checkered white | 4-Acre, All-Access |
| Lycaenidae | <i>Strymon melinus</i> | Gray hairstreak | Rancheria, All-Access |
| | <i>Euphilotes bernardino</i> | Bernardino blue | All-Access |
| | <i>Leptotes marina</i> | Marine blue | Rancheria |
| | <i>Plebejus acmon</i> | Acmon blue | 4-Acre, All-Access |
| Riodinidae | <i>Apodemia virgulti</i> | Behr's metalmark | All-Access |
| Nymphalidae | <i>Junonia coenia</i> | Buckeye | Rancheria, All-Access |
| | <i>Vanessa virginensis</i> | American lady | Rancheria, All-Access |
| | <i>V. annabella</i> | West coast lady | Rancheria, 4-Acre |

No skippers were recorded during the brief visit and seven butterfly species were encountered, six of which were seen both years. The site was impacted by building construction between 2011 and 2012, but the site had previously been graded. Adult butterfly nectar sources, especially composites and non-native perennials were abundant. The site currently supports extensive native vegetation, including well-established oaks, associated with an intermittent stream.

CONCLUSION

Owing to the total lack of larval host plants, even with adequate adult nectar sources, Hermes Copper Butterfly is currently not present on the Rancheria Parcel and would not be expected to occupy it in the future.



David K. Faulkner

Entomologist

USFWS Permit #TE-838743-5

FORENSIC ENTOMOLOGY SERVICES

3 October 2012

5434 Redland Place
San Diego, California 92115-2217
Phone/Fax 619.583.0180
[REDACTED]
Email: Dkfaulkner41@cox.net

Joe Broadhead, Principal
EDS, Inc.
1007 7th Street, Suite 308
Sacramento, California 95814

RE: Hermes Copper Butterfly Surveys, 2011-2012
Jamul Village Site, 4-Acre Parcel, Jamul,
San Diego County, California

INTRODUCTION

Following the completion of protocol surveys for the federally listed Quino Checkerspot Butterfly (QCB) on the 4-Acre Parcel of the Jamul Village Site, additional surveys were conducted for the presence/absence of Hermes Copper Butterfly. This insect, *Lycaena hermes* (Edwards, 1870), was recently listed as a candidate species by the U.S. Fish and Wildlife Service (2011) for the Federal List of Threatened and Endangered Wildlife and Plants. Given the butterfly's current status, surveys are necessary to establish potential habitat and current occupation within the known range of this species. Two site visits were taken to the property, one each in 2011 (14 June) and in 2012 (7 June). Both days occurred after adult Hermes Copper activity was confirmed in San Diego County. Surveys began after 1000 and were concluded around 1500 during adequate weather conditions for adult butterfly activity.

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RESULTS

No Hermes Copper Butterfly adults were found on the 4-Acre Parcel. This was expected because of the total absence of the larval host plant and only a single California buckwheat plant in 2011 that was not located in 2012. There is currently no habitat available to support colonies of Hermes Copper on this site. For all sites, survey dates and weather conditions are given in **Table 1**, and additional butterfly and skipper species recorded are listed in **Table 2**.



Table 1. Survey Dates and Weather Conditions

| DATE | TIME | WEATHER (°F) | LOCATION |
|--------------|-----------|----------------------------|---------------|
| 14 June 2011 | 1130-1500 | 82/82, clear, 1-2 mph wind | All 3 Parcels |
| 7 June 2012 | 1030-1430 | 73/79, clear, 2-5 mph wind | All 3 Parcels |

Temperatures, sunshine, and winds were adequate for adult Hermes Copper activity. Other butterfly species were encountered during the visits.


Table 2. Butterfly and Skipper Species (2011-2012)

| FAMILY | GENUS/SPECIES | COMMON NAME | SITE |
|--------------|------------------------------|-------------------|-----------------------|
| Papilionidae | <i>Papilio zelicaon</i> | Anise swallowtail | Rancheria |
| Pieridae | <i>Pieris rapae</i> | Cabbage white | Rancheria, 4-Acre |
| | <i>Pontia protodice</i> | Checkered white | 4-Acre, All-Access |
| Lycaenidae | <i>Strymon melinus</i> | Gray hairstreak | Rancheria, All-Access |
| | <i>Euphilotes bernardino</i> | Bernardino blue | All-Access |
| | <i>Leptotes marina</i> | Marine blue | Rancheria |
| | <i>Plebejus acmon</i> | Acmon blue | 4-Acre, All-Access |
| Riodinidae | <i>Apodemia virgulti</i> | Behr's metalmark | All-Access |
| Nymphalidae | <i>Junonia coenia</i> | Buckeye | Rancheria, All-Access |
| | <i>Vanessa virginensis</i> | American lady | Rancheria, All-Access |
| | <i>V. annabella</i> | West coast lady | Rancheria, 4-Acre |

No skippers were recorded during the brief visit and only four butterfly species were encountered, three of which were seen only in 2011. The site was mowed between 2011 and 2012, and adult butterfly nectar sources, especially composites, were absent. The site currently supports limited native vegetation.

CONCLUSION

Owing to the total lack of larval host plants and suitable adult nectar sources, Hermes Copper Butterfly is currently not present on the 4-Acre Parcel and would not be expected to occupy it in the future.



David K. Faulkner

Entomologist

USFWS Permit #TE-838743-5

APPENDIX 10

JAMUL GAMING FACILITY MITIGATION MONITORING AND REPORTING PLAN

Mitigation Measure

The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.

A. Hazardous Materials (4.6)

1. Buried Hazards or Hazardous Materials – Construction (4.6(2))

If contaminated soil or groundwater, or a buried hazardous material storage container, is encountered during project construction, work shall be halted in that area, and the type and extent of the contamination shall be identified and characterized by qualified professionals. A qualified professional, in consultation with regulatory agencies shall then develop an appropriate method to remediate the contamination. If necessary, a remediation plan shall be implemented in conjunction with continued project construction.

If any hazardous materials issues are encountered, a Health and Safety Plan (HASP) should also be implemented. A HASP prepared for the construction process, consistent with general industry standards and the Occupational Safety and Health Administration, could address any risks to construction personnel and public safety such that these health and safety risks could be mitigated to an acceptable level.

2. Risk of Causing Wildfire During Project Construction (4.6(4))

- A. Use spark arresters on construction equipment,
- B. Restrict vehicular parking to areas devoid of grasses or other fuels,
- C. Designate safe areas for welding and metal cutting operations,
- D. Prohibit smoking,
- E. Properly store flammable or explosive materials, and
- F. Keep construction areas wetted with water trucks and implement a fire safety/fire response plan.

B. Biological Resources (4.7)

1. Special Status Species/Protected Species (4.7(1))

- A. Because special-status species or protected species that occur in the vicinity could migrate onto the Reservation between the time that the field surveys were completed and the start of construction, pre-construction surveys for special-status species and protected species should be performed by a qualified biologist to ensure that threatened or endangered species are not present. If any special-status species or protected species are detected, construction should be delayed, the appropriate wildlife agencies should be consulted (e.g. USFWS) and avoidance measures implemented. To comply with the federal laws protecting eagles and migratory birds, and to avoid any direct and indirect impacts to nesting birds (especially raptors and migratory species), pre-construction surveys for nesting birds will be performed. If active nesting is detected, the nesting area will be protected by creating a fenced buffer area that excludes construction activities until the young have fledged.
- B. To comply with Fish and Game Code sections protecting nesting birds, and to avoid any direct and indirect impacts to nesting birds (especially raptors and migratory species), grubbing and clearing of vegetation on non-federal lands that may support active nests and construction activities adjacent to nesting habitat, should occur outside of the breeding season (February 15 to September 15; and as early as January 1 for raptors). If removal of habitat and/or construction activities on non-federal lands is necessary adjacent to nesting habitat during the breeding season, the applicant should retain a CDFW-approved biologist to conduct a pre-construction survey to determine the presence or absence of non-listed nesting migratory birds on or within 100 feet of the construction area, determine the presence or absence of ESA- or CESA-listed birds (e.g., coastal California gnatcatcher, least Bell's vireo) on or within 300 feet of the construction area, and determine the presence or absence of nesting raptors within 500 feet of the construction area. The pre-construction survey should be conducted within 10 calendar days prior to the start of construction on non-federal lands, the results of which should be submitted to CDFW for review and approval prior to initiating any construction activities. If nesting birds are detected by the biologist, the following buffers should be established:

Mitigation Measure

The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.

- (1) No work should occur within 100 feet of a non-listed nesting migratory bird nest,
- (2) No work should occur within 300 feet of a listed bird nest, and
- (3) No work should occur within 500 feet of a raptor nest.

There may be a reduction of buffer size depending on site-specific conditions (e.g., the width and type of screening vegetation between the nest and proposed activity) or the existing ambient level of activity (e.g., existing level of human activity within the buffer distance). If construction on non-federal lands must take place within the recommended buffer widths above, the project applicant should contact CDFW to determine the appropriate buffer.

2. Operational Effects from Noise or Lighting (4.7(5))

Glass used in the proposed gaming facility will contain less than 10% reflectivity.

C. Transportation (4.9)**1. Construction Traffic (4.9(1))**

A. To lessen the concentration of construction traffic, the contractor shall implement a Construction Management Plan (CMP) for the project. This CMP shall be implemented as a project feature and shall include the following:

- (1) Encourage construction workers to rideshare to the site,
- (2) Staggering of work hours to avoid all workers arriving at the same time,
- (3) Restrict alternative work hours to avoid the peak-hour commuter traffic along SR-94, and
- (4) Schedule deliveries or equipment hauling to occur at off-peak times.

The above listed CMP strategies shall be documented in an appropriate format.

B. To reduce traffic safety impacts related to construction activities, the Tribe shall implement the following listed measures or other equally effective measures, including but not limited to, the use of California Highway Patrol Personnel:

- (1) Speed reduction signs,
- (2) Temporary flashing beacons, and
- (3) Flagger managing the vehicular conflicts along SR-94 (Campo Road) and the construction entrance driveway. The flagger operations will force vehicles traveling along SR-94 (Campo Road) to reduce their speeds to a stop conditions to allow truck traffic to enter the SR-94 facility.

2. Existing Plus Project Conditions (4.9(2))

The Tribe shall finance and implement the recommended intersection improvements shown in Table 4.9-51 (see Attachment 1).

3. Near Term (2015) Plus Project Conditions (4.9(3))

A. The Tribe shall pay their fair share for the mitigation shown in Table 4.9-54 (see Attachment 2).

B. The Tribe shall pay into the County's Transportation Impact Fee for cumulatively considerable traffic impacts on County of San Diego facility (Jamacha and Sweetwater Springs Boulevard).

Mitigation Measure

The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.

4. Horizon Year (2035) Plus Project Conditions (4.9(4))

To mitigate cumulatively considerable significant traffic related impacts at intersections and roadway segments within the Caltrans jurisdiction, the Tribe shall pay a fair-share contribution toward the construction of improvements identified in Table 4.9-57, as well as mitigation phasing displayed under Mitigation 4.9-2. To mitigate cumulatively considerable significant traffic related impacts at the intersections and roadway segments within the County of San Diego, pay toward the County's Transportation Impact Fee. The improvements shown are consistent with the County of San Diego's Mobility Element approved in 2011.

D. Noise (4.10)**1. Construction Noise and Vibration (4.10(1 and 2))**

The following recommended noise abatement measures would reduce noise associated with project construction:

- A. Contractors should schedule construction activities to avoid simultaneous use of several pieces of high noise level-emitting equipment, to the extent practicable,
- B. Construction equipment shall be fitted with manufacturer's standard, or better, noise shielding and muffling devices to reduce noise levels to the maximum extent feasible, and
- C. Equipment maintenance and staging areas shall be located as far away from local residences and hotel uses, as feasible.
- D. Prepare and Implement a Blast Plan and Monitor and Record Each Blast Near Sensitive Receptors. To reduce impacts associated with air blast over-pressure generated by project-related construction activities, the project applicant(s) of all project phases shall conform to the following requirements,
 - (1) All blasting shall be performed by a blast contractor and blasting personnel licensed to operate in the County,
 - (2) Each blast shall be monitored and recorded with an air blast over-pressure monitor and ground borne vibration accelerometer approved by the Tribe that is located outside the closest residence to the blast, and
 - (3) A blasting plan, including estimates of the air blast over-pressure level and ground borne vibration at the residence closest to the blast, shall be submitted to the Tribe for review prior to the first blast. Blasting shall not commence until the Tribe has approved the blast plan.

2. On Site Mechanical Equipment (4.10(4))

Acoustical louvers capable of a 10 decibel reduction should be installed for all ventilation and when possible orientate the ventilation away from sensitive uses. Although not required to mitigate the impact, the Tribe will also consider the use of roof top parapet walls, screening barriers, and mechanical enclosures to ensure County Code requirements are met.

E. Air Quality (4.11)**1. Criteria Pollutants – Construction (4.11.3)**

- A. Minimize land disturbance,
- B. Use watering trucks to minimize dust; watering should be sufficient to confine, dust plumes to the project work areas,
- C. Suspend grading and earth moving when wind gusts exceed 25 miles per hour unless the soil is wet enough to prevent dust plumes,
- D. Cover all trucks hauling dirt when traveling at speeds greater than 15 miles per hour.
- E. Stabilize the surface of dirt piles if not removed within 2 days,

Mitigation Measure

The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.

- F. Limit vehicular paths on unpaved surfaces and stabilize any temporary roads.
- G. Minimize unnecessary vehicular and machinery activities,
- H. Sweep paved streets at least once per day where there is evidence that dirt has been carried on to the roadway,
- I. Revegetate disturbed land, including vehicular paths created during construction to avoid future off-road vehicular activities, and
- J. Remove unused material.

2. On Site Mechanical Equipment (4.11(4))

- A. Install solar panels on the roof, where possible, in areas not being utilized for the green roof technologies,
- B. Provide shuttle and bus services to and from the project to reduce vehicle trips and miles traveled,
- C. Flare off and burned CH₄ produced at the wastewater treatment plant to reduce CH₄ emissions up to 95%,
- D. Utilize low flow water devices High Efficiency Toilets (HET) and with specifications meeting or exceeding standards set forth by the EPA,
- E. Install low energy utilities (i.e., lighting and appliances) to increase building efficiency and reduce power consumption,
- F. Promote employee and patron ridesharing to help reduce vehicle trips traveled, and
- G. Install dedicated parking stalls and charging stations for electric vehicles.

F. Public Services (4.12)**1. Law Enforcement (4.12(5))**

- A. Provide on-site security for gaming operations to reduce and prevent criminal and civil incidents.
- B. All security guards would carry two-way radios so they are able to efficiently respond to back up and emergency related calls. This would aid in the prevention of criminal activity within gaming facilities.
- C. Adopt a "Responsible Alcoholic Beverage Policy" which would include, but not be limited to, requiring patrons to prove their age and refusing service to those who have had too much to drink. This policy would be coordinated with the San Diego Sheriff's Office.
- D. All parking areas would be well lit and monitored by parking staff and/or roving security guards at all times during operation. This would aid in the prevention of auto theft and other related criminal activity.
- E. Areas surrounding the gaming facilities would have "No Loitering" signs in place, would be well lit and would be patrolled regularly by roving security guards. This would aid in the prevention of illegal loitering and all crimes that relate to, or require, loitering.
- F. Provide traffic control with appropriate signage and the presence of peak-hour traffic control staff. This would aid in the prevention of off-site parking, which could create possible security issues.
- G. The Tribe will make good faith efforts to enter into an agreement with the County regarding law enforcement services.

2. Fire Protection and Emergency Medical Services (4.12(6))

To reduce the risk of starting a wildfire during construction, the Tribe will make a good faith effort to implement the following best management practices during construction:

Mitigation Measure

The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.

- A. Use spark arresters on construction equipment,
- B. Restrict vehicular parking to areas devoid of grasses or other fuels,
- C. Designate safe areas for welding and metal cutting operations,
- D. Prohibit smoking,
- E. Properly store flammable or explosive materials, and
- F. Keep construction areas wetted with water trucks and
- G. Implement a fire safety/fire response plan.

G. Effects of Mitigation Measures (4.15)**1. Hydrology and Water Quality (4.15(2))**

A. Implement temporary and permanent BMPs including:

- (1) Temporary BMPs: fiber rolls, hydro-seeding, temporary drainage inlet protection, preserve existing vegetation, stabilized construction entrances, self-contained concrete washout area, and covered material delivery and storage areas, and
- (2) Permanent BMPs: vegetate all disturbed slopes, implementing biostrips or bioswales, and detention basins. These BMPs would be used to prevent pollutants from entering the Waters of the United States.

B. The drainage crossing plans shall include a design that shows improvements to be located outside of the ordinary high water mark. If unable to design outside of high water mark, the Tribe shall acquire a Clean Water Act Section 404 Permit from the USACOE prior to undertaking any grading activities and shall implement all permit requirements during construction and operation. Permit conditions may include the purchase of in-lieu credits at a mitigation bank, as well as the implementation of Best Management Practices during construction activities.

C. Employ plywood shoring (or a similar temporary construction barrier) and the following erosion and sediment control measures to ensure that sediment does not enter Willow Creek during construction of retaining walls.

- (1) Existing vegetation will be preserved when feasible,
- (2) Erosion in concentrated flow paths will be controlled by applying fiber rolls, erosion control / fiber blankets, silt fences, and plastic sheeting, and/or lining swales as required,
- (3) Concentrated water flows shall be channeled away from disturbed soil areas and stockpiles. Concentrated water flows shall be conveyed in a non-eroding fashion, and
- (4) Non-active areas, and all finished slopes, will be stabilized with effective soil cover (such as aggregate, paving, or vegetation) as soon as feasible after construction or disturbance is complete and no later than 14 days after construction or disturbance in that portion of the site has temporarily or permanently ceased.

D. Designate riparian areas with warning signs and fencing and avoid completely, where feasible.

2. Biological Resources (4.15(4))

A. Implement Mitigation Measure 4.7(1).

B. Implement Mitigation Measure 4.7(1)(B)

C. A monitoring biologist (approved by CDFW) shall be on site during initial clearing and grubbing of habitat on non-federal lands, and project construction within 300 feet of preserved habitat, to ensure compliance with all conservation measures. The biologist shall be knowledgeable of upland and wetland biology and ecology. The applicant shall submit the biologist's name, address, telephone

Mitigation Measure

The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.

number, and work schedule on the Project to CDFW at least 30 days prior to initiating construction. The biologist shall perform the following duties:

- (1) Oversee installation of and inspect temporary fencing and erosion control measures within or up-slope of all restoration and/or preservation areas a minimum of once per week and daily during all rain events to ensure that any breaks in the fence or erosion control devices are repaired immediately.
- (2) Monitor the work area weekly to ensure that work activities do not generate excessive amounts of dust.
- (3) Train all contractors and construction personnel on the biological resources associated with this project and ensure that training is implemented by construction personnel. At a minimum, training shall include:
 - The purpose for resource protection.
 - The conservation measures that shall be implemented during project construction, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced project footprint to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing).
 - Environmentally responsible construction practices.
 - The protocol to resolve conflicts that may arise at any time during the construction process.
- (4) Halt work, if necessary on non-federal lands, and confer with CDFW and County PDS to ensure the proper implementation of species and habitat protection measures. The biologist shall report any violation to CDFW within 24 hours of its occurrence.
- (5) Submit weekly letter reports (including photographs of impacted areas) to CDFW and County PDS during clearing of habitat and/or construction within 300 feet of preserved habitat on non-federal lands. The weekly reports will document that authorized impacts were not exceeded, and general compliance with all conditions. The reports will also outline the duration of species monitoring, the location of construction activities, the type of construction which occurred, and equipment used. These reports will specify numbers, locations, and sex of sensitive species (if present), observed species behavior (especially in relation to construction activities), and remedial measures employed to avoid, minimize, and mitigate impacts to sensitive species. Raw field notes shall be made available upon request by CDFW.
- (6) Submit a final report to CDFW and County PDS within 60 days of the project completion that includes: as-built construction drawings with an overlay of habitat that was impacted and protected, photographs of habitat areas that were to be avoided, and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conditions was achieved.

D. Habitat Loss: Prior to grading activities, the following habitat loss mitigation shall be implemented:

- (1) Prior to development of the access road, the loss of protected habitats (grasslands, coastal scrub, coast live oak riparian forest) shall be mitigated at the ratios specified by the Biological Mitigation Ordinance, which vary from 0.5:1 to 3:1 depending upon the Tier category and whether or not the land is in a Biological Resource Core Area (either by in lieu fee payment or by deed restriction of qualified lands).

3. Cultural Resources (4.15(5))

A. The Tribe shall implement inadvertent discovery measures during all construction activities within the access road and off-site intersection Improvement areas. Measures include:

- (1) A worker education course for all construction personnel covering immediate work curtailment to protect cultural resources and to be conducted prior to initiation of ground-disturbing activities,
- (2) Monitoring by a qualified archeologist, who meets the Secretary of the Interior's Standards for archaeologists (found at 36 CFR §61), as well as a JIV tribal monitor, of all earth-disturbing activities in close proximity to site CA-SDI-7966/11410 and CA-SDI-11051, and of all off-site earth-disturbing activities in native soils/sediments; and
- (3) Procedures for discovery of cultural resources, including human remains, during construction or earth-disturbing activities if an archaeological monitor is not present.

B. In the event that any prehistoric, historic, or paleontological resources are discovered during construction-related earth-moving activities, all work within 50 feet of the resources shall be halted and a qualified archaeologist or paleontologist, as appropriate, shall be consulted to assess the significance of the find. If any find is determined to be significant by the qualified professional, then appropriate agency and project representatives and the qualified archaeologist and/or paleontologist shall meet to determine the appropriate course of action. All significant cultural or paleontological materials

Mitigation Measure

The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.

recovered shall be subject to scientific analysis, professional museum curation, and a report prepared by the qualified archaeologist or paleontologist according to current professional standards.

- C. If human bone or bone of unknown origin is found during construction, all work shall stop within 50 feet of the find and the San Diego County Coroner and the Tribe shall be contacted immediately. If the remains are determined to be Native American, the coroner shall notify the Native American Heritage Commission (NAHC) who shall identify the most likely descendant. The most likely descendant shall work with the Tribe and the Lead Agency, as appropriate, to develop a plan for re-interment of the human remains and any associated artifacts. No additional work shall take place within the immediate vicinity of the find until the identified actions have been implemented.

4. Off Site Intersection Improvements

- A. Implement Mitigation Measures 4.6(2) and 4.12(6) to reduce potential Hazardous Materials impacts to a less than significant level.
- B. Prior to grading activities for any intersections impacting jurisdictional waters, the improvement plans shall include a design that shows improvements to be located outside of the ordinary high water mark. If unable to design outside of high water mark, the developer shall acquire a Clean Water Act Section 404 Permit from the USACOE prior to undertaking any grading activities. Permit conditions typically include the purchase of in-lieu credits at a mitigation bank as well as the implementation of Best Management Practices during construction activities.
- C. Prior to development of any of the intersection improvement areas, impacted protected habitats (grasslands, coastal scrub, coast live oak riparian forest) shall be mitigated at the ratio specified by the Biological Mitigation Ordinance, which vary from 0.5:1 to 3:1 depending upon the Tier category and whether or not the land is in a Biological Resource Core Area (either by in lieu fee payment or by deed restriction of qualified lands),
- D. Implement Mitigation Measure 4.15(2)(B) to reduce potential Jurisdictional Waters impacts to a less than significant level.
- E. Implement Mitigation Measure 4.15(4) to reduce biological resource impacts to a less than significant level.
- F. Implement Mitigation 4.15-5 to reduce cultural resource impacts to a less than significant level.
- G. Prior to development of the intersection improvement areas, any impacted County-protected plants (Group A Plants defined by County PDS), such as San Diego thornmint or Palmer's Goldenbush, shall be compensated at a 3:1 acreage ratio (either in lieu fee payment to the County or by deed restriction of qualified lands) to the satisfaction of the County of San Diego Director of Planning and Development Services.
- H. The following Best Management Practices shall be implemented to protect water bodies from impacts:
 - (1) create and implement a Hazardous Materials Management Plan and Spill Response Plan, including the identification of specific refueling areas,
 - (2) create and implement an erosion control plan and a sediment monitoring plan, including the placement of jute mats, straw bales and wattles, sand bags, and vegetative covers (e.g. Hydroseed), weather monitoring, and specific inspection protocols,
 - (3) designated concrete washout areas and other filters for construction materials,
 - (4) a visual monitoring program and a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs,
 - (5) create and implement a Hazardous Materials Management Plan and Spill Response Plan, including the identification of specific refueling areas,
 - (6) create and implement an erosion control plan and a sediment monitoring plan, including the placement of jute mats, straw bales and wattles, sand bags, and vegetative covers (e.g. Hydroseed), weather monitoring, and specific inspection protocols,
 - (7) designated concrete washout areas and other filters for construction materials, and
 - (8) a visual monitoring program and a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs.

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|--|--|---|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01. | | | | | |
| A. Hazardous Materials (4.6) | | | | | |
| 1. Buried Hazards or Hazardous Materials – Construction (4.6(2)) If contaminated soil or groundwater, or a buried hazardous material storage container, is encountered during project construction, work shall be halted in that area, and the type and extent of the contamination shall be identified and characterized by qualified professionals. A qualified professional, in consultation with regulatory agencies shall then develop an appropriate method to remediate the contamination. If necessary, a remediation plan shall be implemented in conjunction with continued project construction. If any hazardous materials issues are encountered, a Health and Safety Plan (HASP) should also be implemented. A HASP prepared for the construction process, consistent with general industry standards and the Occupational Safety and Health Administration, could address any risks to construction personnel and public safety such that these health and safety risks could be mitigated to an acceptable level. | Throughout construction activities. | IE: Prime Construction Contractor/Registered Site Assessor ME: Jamul Tribe | | | |
| 2. Risk of Causing Wildfire During Project Construction (4.6(4)) A. Use spark arresters on construction equipment, B. Restrict vehicular parking to areas devoid of grasses or other fuels, C. Designate safe areas for welding and metal cutting operations, D. Prohibit smoking, E. Properly store flammable or explosive materials, and F. Keep construction areas wetted with water trucks and implement a fire safety/fire response plan. | A-F. Throughout construction activities. | IE: Prime Construction Contractor ME: Jamul Tribe | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|--|--|--|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01. | | | | | |
| B. Biological Resources (4.7) | | | | | |
| 1. Special Status Species/Protected Species (4.7(1)) A. Because special-status species or protected species that occur in the vicinity could migrate onto the Reservation between the time that the field surveys were completed and the start of construction, pre-construction surveys for special-status species and protected species should be performed by a qualified biologist to ensure that threatened or endangered species are not present. If any special-status species or protected species are detected, construction should be delayed, the appropriate wildlife agencies should be consulted (e.g. USFWS) and avoidance measures implemented. To comply with the federal laws protecting eagles and migratory birds, and to avoid any direct and indirect impacts to nesting birds (especially raptors and migratory species), pre-construction surveys for nesting birds will be performed. If active nesting is detected, the nesting area will be protected by creating a fenced buffer area that excludes construction activities until the young have fledged. B. To comply with Fish and Game Code sections protecting nesting birds, and to avoid any direct and indirect impacts to nesting birds (especially raptors and migratory species), grubbing and clearing of vegetation on non-federal lands that may support active nests and construction activities adjacent to nesting habitat, should occur outside of the breeding season (February 15 to September 15; and as early as January 1 for raptors). If removal of habitat and/or construction activities on non-federal lands is necessary adjacent to nesting habitat during the breeding season, the applicant should retain a CDFW-approved biologist to conduct a pre-construction survey to determine the presence or absence of non-listed nesting migratory birds on or within 100 feet of the construction area, determine the presence or absence of ESA- or CESA-listed birds (e.g., coastal California gnatcatcher, least Bell’s vireo) on or within 300 feet of the construction area, and determine the presence or absence of nesting raptors within 500 feet of the construction area. The pre-construction survey should be conducted within 10 | A. Prior to commencement of construction activities. B. Throughout construction activities. Selection of CDFW-approved biologist, development of pre-construction surveys and the undertaking of CDFW consultation, if needed, shall take place prior to commencement of construction activities. | A. IE: Prime Construction Contractor/Biologist ME: Jamul Tribe B. IE: Prime Construction Contractor/Biologist ME: Jamul Tribe | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|---|--|---|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| <p>The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.</p> <p>calendar days prior to the start of construction on non-federal lands, the results of which should be submitted to CDFW for review and approval prior to initiating any construction activities. If nesting birds are detected by the biologist, the following buffers should be established:</p> <p>(1) No work should occur within 100 feet of a non-listed nesting migratory bird nest,</p> <p>(2) No work should occur within 300 feet of a listed bird nest, and</p> <p>(3) No work should occur within 500 feet of a raptor nest.</p> <p>There may be a reduction of buffer size depending on site-specific conditions (e.g., the width and type of screening vegetation between the nest and proposed activity) or the existing ambient level of activity (e.g., existing level of human activity within the buffer distance). If construction on non-federal lands must take place within the recommended buffer widths above, the project applicant should contact CDFW to determine the appropriate buffer.</p> | | | | | |
| <p>2. Operational Effects from Noise or Lighting (4.7(5))</p> <p>Glass used in the proposed gaming facility will contain less than 10% reflectivity.</p> | <p>Prior to commencement of construction activities, a note shall be placed on the Final Plans regarding the glass specifications. The specified glass shall be installed prior to operation of gaming facility.</p> | <p>IE: Architect/Civil Engineer and Prime Construction Contractor</p> <p>ME: Jamul Tribe</p> | | | |
| C. Transportation (4.9) | | | | | |
| <p>1. Construction Traffic (4.9(1))</p> <p>A. To lessen the concentration of construction traffic, the contractor shall implement a Construction Management Plan (CMP) for the project. This CMP shall be implemented as a project feature and shall include the following:</p> <p>(1) Encourage construction workers to rideshare to the site,</p> <p>(2) Staggering of work hours to avoid all workers arriving at the same time,</p> | <p>A. The CMP shall be submitted to Caltrans for its information prior to commencement of construction work for the gaming facility.</p> | <p>A. IE: Traffic Engineer</p> <p>ME: Jamul Tribe</p> <p>B. IE: Traffic Engineer</p> <p>ME: Jamul Tribe</p> <p>C. IE: Prime Construction Contractor</p> | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|---|---|---|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| <p>The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.</p> <p>(3) Restrict alternative work hours to avoid the peak-hour commuter traffic along SR-94, and</p> <p>(4) Schedule deliveries or equipment hauling to occur at off-peak times.</p> <p>The above listed CMP strategies shall be documented in an appropriate format.</p> <p>B. To reduce traffic safety impacts related to construction activities, the Tribe shall implement the following listed measures or other equally effective measures, including but not limited to, the use of California Highway Patrol Personnel:</p> <p>(1) Speed reduction signs,</p> <p>(2) Temporary flashing beacons, and</p> <p>(3) Flagger managing the vehicular conflicts along SR-94 (Campo Road) and the construction entrance driveway. The flagger operations will force vehicles traveling along SR-94 (Campo Road) to reduce their speeds to a stop conditions to allow truck traffic to enter the SR-94 facility.</p> | | ME: Jamul Tribe | | | |
| <p>2. Existing Plus Project Conditions (4.9(2))</p> <p>The Tribe shall finance and implement the recommended intersection improvements shown in Table 4.9-51 (see Attachment 1).</p> | <p>The measures shall be financed and implemented when (1) plans for individual improvements are approved by Caltrans, and (2) the Encroachment Permit for the SR-94 roadway improvements has been approved by Caltrans.</p> | <p>IE: Jamul Tribe</p> <p>ME: Jamul Tribe</p> | | | |
| <p>3. Near Term (2015) Plus Project Conditions (4.9(3))</p> <p>A. The Tribe shall pay their fair share for the mitigation shown in Table 4.9-54 (see Attachment 2).</p> <p>B. The Tribe shall pay into the County's Transportation Impact Fee for cumulatively considerable traffic impacts on County of San Diego facility (Jamacha and Sweetwater Springs Boulevard).</p> | <p>A. The fair share contributions shall be made to Caltrans (1) prior to commencement of operation for the gaming facility and (2) if the parties, after undertaking good faith efforts, are able to reach consensus on the terms of a fair share agreement.</p> <p>B. The payment shall be made when (1) the Encroachment Permit for the SR-94 roadway improvements has been approved by Caltrans, and (2) if</p> | <p>A. IE: Jamul Tribe</p> <p>ME: Jamul Tribe</p> <p>B. IE: Jamul Tribe</p> <p>ME: Jamul Tribe</p> | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|--|--|---|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01. | | | | | |
| | the parties, after undertaking good faith efforts, are able to reach consensus on the terms of a fair share agreement. | | | | |
| 4. Horizon Year (2035) Plus Project Conditions (4.9(4)) To mitigate cumulatively considerable significant traffic related impacts at intersections and roadway segments within the Caltrans jurisdiction, the Tribe shall pay a fair-share contribution toward the construction of improvements identified in Table 4.9-57, as well as mitigation phasing displayed under Mitigation 4.9-2. To mitigate cumulatively considerable significant traffic related impacts at the intersections and roadway segments within the County of San Diego, pay toward the County's Transportation Impact Fee. The improvements shown are consistent with the County of San Diego's Mobility Element approved in 2011. | The fair share payments will be made when (1) the Encroachment Permit for the SR-94 roadway improvements has been approved by Caltrans, and (2) the agreed upon fair share contribution has been calculated. | IE: Jamul Tribe ME: Jamul Tribe | | | |
| D. Noise (4.10) | | | | | |
| 1. Construction Noise and Vibration (4.10(1 and 2)) The following recommended noise abatement measures would reduce noise associated with project construction: A. Contractors should schedule construction activities to avoid simultaneous use of several pieces of high noise level-emitting equipment, to the extent practicable, B. Construction equipment shall be fitted with manufacturer's standard, or better, noise shielding and muffling devices to reduce noise levels to the maximum extent feasible, and C. Equipment maintenance and staging areas shall be located as far away from local residences and hotel uses, as feasible. D. Prepare and Implement a Blast Plan and Monitor and Record Each Blast Near Sensitive Receptors. To reduce impacts associated with air blast over-pressure generated by project-related construction activities, the project applicant(s) of all project phases shall conform to the following requirements, (1) All blasting shall be performed by a blast contractor | A-C. Throughout construction activities. D. Preparation of the Blast Management Plan shall be completed prior to any scheduled blasting activities. The measures of the Blasting Plan shall be implemented throughout construction/blasting activities. | A-D. IE: Prime Construction Contractor ME: Jamul Tribe | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|---|---|--|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| <p>The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.</p> <p>and blasting personnel licensed to operate in the County,</p> <p>(2) Each blast shall be monitored and recorded with an air blast over-pressure monitor and ground borne vibration accelerometer approved by the Tribe that is located outside the closest residence to the blast, and</p> <p>(3) A blasting plan, including estimates of the air blast over-pressure level and ground borne vibration at the residence closest to the blast, shall be submitted to the Tribe for review prior to the first blast. Blasting shall not commence until the Tribe has approved the blast plan.</p> | | | | | |
| <p>2. On Site Mechanical Equipment (4.10(4))</p> <p>Acoustical louvers capable of a 10 decibel reduction should be installed for all ventilation and when possible orientate the ventilation away from sensitive uses. Although not required to mitigate the impact, the Tribe will also consider the use of roof top parapet walls, screening barriers, and mechanical enclosures to ensure County Code requirements are met.</p> | <p>Prior to commencement of construction activities, a note shall be placed on the Final Plans regarding the acoustical louver specifications. The acoustical louvers shall be implemented prior to operation of the gaming facility.</p> | <p>IE: Architect/Civil Engineer and Prime Construction Contractor</p> <p>ME: Jamul Tribe</p> | | | |
| E. Air Quality (4.11) | | | | | |
| <p>1. Criteria Pollutants – Construction (4.11.3)</p> <p>A. Minimize land disturbance,</p> <p>B. Use watering trucks to minimize dust; watering should be sufficient to confine, dust plumes to the project work areas,</p> <p>C. Suspend grading and earth moving when wind gusts exceed 25 miles per hour unless the soil is wet enough to prevent dust plumes,</p> <p>D. Cover all trucks hauling dirt when traveling at speeds greater than 15 miles per hour.</p> <p>E. Stabilize the surface of dirt piles if not removed within 2 days,</p> <p>F. Limit vehicular paths on unpaved surfaces and stabilize any temporary roads.</p> | <p>A-J. Prior to commencement of construction activities, a note shall be placed on the Final Plans regarding Measures 4.11.3(A-J).</p> | <p>IE: Architect/Civil Engineer and Prime Construction Contractor</p> <p>ME: Jamul Tribe</p> | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|--|---|---|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| <p>The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.</p> <p>G. Minimize unnecessary vehicular and machinery activities,</p> <p>H. Sweep paved streets at least once per day where there is evidence that dirt has been carried on to the roadway,</p> <p>I. Revegetate disturbed land, including vehicular paths created during construction to avoid future off-road vehicular activities, and</p> <p>J. Remove unused material.</p> | | | | | |
| <p>2. On Site Mechanical Equipment (4.11(4))</p> <p>A. Install solar panels on the roof, where possible, in areas not being utilized for the green roof technologies,</p> <p>B. Provide shuttle and bus services to and from the project to reduce vehicle trips and miles traveled,</p> <p>C. Flare off and burned CH₄ produced at the wastewater treatment plant to reduce CH₄ emissions up to 95%,</p> <p>D. Utilize low flow water devices High Efficiency Toilets (HET) and with specifications meeting or exceeding standards set forth by the EPA,</p> <p>E. Install low energy utilities (i.e., lighting and appliances) to increase building efficiency and reduce power consumption,</p> <p>F. Promote employee and patron ridesharing to help reduce vehicle trips traveled, and</p> <p>G. Install dedicated parking stalls and charging stations for electric vehicles.</p> | A-G. Measures shall be in place and operational prior to occupancy of the gaming facility. | A-G. IE: Prime Construction Contractor/Gaming Operator ME: Jamul Tribe | | | |
| F. Public Services (4.12) | | | | | |
| <p>1. Law Enforcement (4.12(5))</p> <p>A. Provide on-site security for gaming operations to reduce and prevent criminal and civil incidents.</p> <p>B. All security guards would carry two-way radios so they are able to efficiently respond to back up and emergency related</p> | A-G. Relevant measures shall be in place and operational prior to occupancy of the gaming facility. | A-G. IE: Gaming Operator/Jamul Tribe ME: Jamul Tribe | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|--|---|--|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| <p>The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.</p> <p>calls. This would aid in the prevention of criminal activity within gaming facilities.</p> <p>C. Adopt a "Responsible Alcoholic Beverage Policy" which would include, but not be limited to, requiring patrons to prove their age and refusing service to those who have had too much to drink. This policy would be coordinated with the San Diego Sheriff's Office.</p> <p>D. All parking areas would be well lit and monitored by parking staff and/or roving security guards at all times during operation. This would aid in the prevention of auto theft and other related criminal activity.</p> <p>E. Areas surrounding the gaming facilities would have "No Loitering" signs in place, would be well lit and would be patrolled regularly by roving security guards. This would aid in the prevention of illegal loitering and all crimes that relate to, or require, loitering.</p> <p>F. Provide traffic control with appropriate signage and the presence of peak-hour traffic control staff. This would aid in the prevention of off-site parking, which could create possible security issues.</p> <p>G. The Tribe will make good faith efforts to enter into an agreement with the County regarding law enforcement services.</p> | | | | | |
| <p>2. Fire Protection and Emergency Medical Services (4.12(6))</p> <p>To reduce the risk of starting a wildfire during construction, the Tribe will make a good faith effort to implement the following best management practices during construction:</p> <p>A. Use spark arresters on construction equipment,</p> <p>B. Restrict vehicular parking to areas devoid of grasses or other fuels,</p> <p>C. Designate safe areas for welding and metal cutting operations,</p> <p>D. Prohibit smoking,</p> <p>E. Properly store flammable or explosive materials, and</p> | A-G: Throughout construction activities | <p>A-G. IE: Prime Construction Contractor</p> <p>ME: Jamul Tribe</p> | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|--|---|--|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01. | | | | | |
| F. Keep construction areas wetted with water trucks and G. Implement a fire safety/fire response plan. | | | | | |
| G. Effects of Mitigation Measures (4.15) | | | | | |
| 1. Hydrology and Water Quality (4.15(2)) A. Implement temporary and permanent BMPs including: <ol style="list-style-type: none"> (1) Temporary BMPs: fiber rolls, hydro-seeding, temporary drainage inlet protection, preserve existing vegetation, stabilized construction entrances, self-contained concrete washout area, and covered material delivery and storage areas, and (2) Permanent BMPs: vegetate all disturbed slopes, implementing biostrips or bioswales, and detention basins. These BMPs would be used to prevent pollutants from entering the Waters of the United States. B. The drainage crossing plans shall include a design that shows improvements to be located outside of the ordinary high water mark. If unable to design outside of high water mark, the Tribe shall acquire a Clean Water Act Section 404 Permit from the USACOE prior to undertaking any grading activities and shall implement all permit requirements during construction and operation. Permit conditions may include the purchase of in-lieu credits at a mitigation bank, as well as the implementation of Best Management Practices during construction activities. C. Employ plywood shoring (or a similar temporary construction barrier) and the following erosion and sediment control measures to ensure that sediment does not enter Willow Creek during construction of retaining walls. <ol style="list-style-type: none"> (1) Existing vegetation will be preserved when feasible, (2) Erosion in concentrated flow paths will be controlled by applying fiber rolls, erosion control / fiber blankets, silt fences, and plastic sheeting, and/or lining swales as required, (3) Concentrated water flows shall be channeled away from disturbed soil areas and stockpiles. Concentrated water | A, C, D. Prior to commencement of construction activities, final plans shall have notes added to reflect identified measures. Identified measures shall be implemented throughout construction activities. B. Prior to commencement of construction activities, final plans shall show improvements being located outside the high water mark. If this is not possible, a 404 Permit shall be secured prior to commencement of any construction activities related to the access road. | A-D. IE: Architect/Civil Engineer and Prime Construction Contractor ME: Jamul Tribe | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|--|--|---|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| <p>The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.</p> <p>flows shall be conveyed in a non-eroding fashion, and</p> <p>(4) Non-active areas, and all finished slopes, will be stabilized with effective soil cover (such as aggregate, paving, or vegetation) as soon as feasible after construction or disturbance is complete and no later than 14 days after construction or disturbance in that portion of the site has temporarily or permanently ceased.</p> <p>D. Designate riparian areas with warning signs and fencing and avoid completely, where feasible.</p> | | | | | |
| <p>2. Biological Resources (4.15(4))</p> <p>A. Implement Mitigation Measure 4.7(1).</p> <p>B. Implement Mitigation Measure 4.7(1)(B)</p> <p>C. A monitoring biologist (approved by CDFW) shall be on site during initial clearing and grubbing of habitat on non-federal lands, and project construction within 300 feet of preserved habitat, to ensure compliance with all conservation measures. The biologist shall be knowledgeable of upland and wetland biology and ecology. The applicant shall submit the biologist's name, address, telephone number, and work schedule on the Project to CDFW at least 30 days prior to initiating construction. The biologist shall perform the following duties:</p> <p>(1) Oversee installation of and inspect temporary fencing and erosion control measures within or up-slope of all restoration and/or preservation areas a minimum of once per week and daily during all rain events to ensure that any breaks in the fence or erosion control devices are repaired immediately,</p> <p>(2) Monitor the work area weekly to ensure that work activities do not generate excessive amounts of dust,</p> <p>(3) Train all contractors and construction personnel on the biological resources associated with this project and ensure that training is implemented by construction personnel. At a minimum, training shall include:</p> <ul style="list-style-type: none"> - The purpose for resource protection. - The conservation measures that shall be | <p>A. Prior to commencement of construction activities, notes shall be placed on Final Plans for off-global Reservation intersections regarding the need for pre-construction surveys for special status/protected species and measures to avoid impacts to nesting birds. Measures shall be implemented prior to, and throughout construction activities associated with off-Reservation intersections. Pre-construction surveys and CDFW consultation shall take place prior to construction activities of off-Reservation intersections.</p> <p>B. Prior to commencement of construction activities, notes shall be placed on Final Plans of off-Reservation intersections regarding measures to avoid impacts to raptors and/or migratory birds. The pre-construction survey, if needed, shall be conducted within 10 calendar days prior to the start of construction on non-federal lands, the result of which shall be submitted to CDFW for review and approval prior to initiating any construction activities of off-Reservation intersections. If a buffer is needed, it shall be approved and in place prior to commencement of grading activities off-Reservation</p> | <p>A-D. IE: Architect/Civil Engineer, Prime Construction Contractor, and Jamul Tribe</p> <p>ME: Jamul Tribe</p> | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|---|---|--|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| <p>The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.</p> <p>implemented during project construction, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced project footprint to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing).</p> <ul style="list-style-type: none"> - Environmentally responsible construction practices. - The protocol to resolve conflicts that may arise at any time during the construction process. <p>(4) Halt work, if necessary on non-federal lands, and confer with CDFW and County PDS to ensure the proper implementation of species and habitat protection measures. The biologist shall report any violation to CDFW within 24 hours of its occurrence.</p> <p>(5) Submit weekly letter reports (including photographs of impacted areas) to CDFW and County PDS during clearing of habitat and/or construction within 300 feet of preserved habitat on non-federal lands. The weekly reports will document that authorized impacts were not exceeded, and general compliance with all conditions. The reports will also outline the duration of species monitoring, the location of construction activities, the type of construction which occurred, and equipment used. These reports will specify numbers, locations, and sex of sensitive species (if present), observed species behavior (especially in relation to construction activities), and remedial measures employed to avoid, minimize, and mitigate impacts to sensitive species. Raw field notes shall be made available upon request by CDFW.</p> <p>(6) Submit a final report to CDFW and County PDS within 60 days of the project completion that includes: as-built construction drawings with an overlay of habitat that was impacted and protected, photographs of habitat areas that were to be avoided, and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conditions was achieved.</p> <p>D. <u>Habitat Loss</u>: Prior to grading activities, the following habitat loss mitigation shall be implemented:</p> | <p>intersections.</p> <p>C. The monitoring biologist shall be on site prior to commencement of grading activities (within 300 feet of preserved habitat) associated with off-Reservation intersections/roadways. The biologist's name, address, telephone number, and work schedule shall be submitted to CDFW at least 30 days prior to initiating construction of off-Reservation intersections.</p> <p>D. Prior to grading of off-Reservation intersections.</p> | | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|---|---|---|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01. | | | | | |
| (1) Prior to development of the access road, the loss of protected habitats (grasslands, coastal scrub, coast live oak riparian forest) shall be mitigated at the ratios specified by the Biological Mitigation Ordinance, which vary from 0.5:1 to 3:1 depending upon the Tier category and whether or not the land is in a Biological Resource Core Area (either by in lieu fee payment or by deed restriction of qualified lands). | | | | | |
| 3. Cultural Resources (4.15(5)) A. The Tribe shall implement inadvertent discovery measures during all construction activities within the access road and off-site intersection Improvement areas. Measures include: <ol style="list-style-type: none"> (1) A worker education course for all construction personnel covering immediate work curtailment to protect cultural resources and to be conducted prior to initiation of ground-disturbing activities, (2) Monitoring by a qualified archeologist, who meets the Secretary of the Interior's Standards for archaeologists (found at 36 CFR §61), as well as a JIV tribal monitor, of all earth-disturbing activities in close proximity to site CA-SDI-7966/11410 and CA-SDI-11051, and of all off-site earth-disturbing activities in native soils/sediments; and (3) Procedures for discovery of cultural resources, including human remains, during construction or earth-disturbing activities if an archaeological monitor is not present. B. In the event that any prehistoric, historic, or paleontological resources are discovered during construction-related earth-moving activities, all work within 50 feet of the resources shall be halted and a qualified archaeologist or paleontologist, as appropriate, shall be consulted to assess the significance of the find. If any find is determined to be significant by the qualified professional, then appropriate agency and project representatives and the qualified archaeologist and/or paleontologist shall meet to determine the appropriate course of action. All significant cultural or paleontological materials recovered shall be subject to scientific analysis, professional museum curation, and a report prepared by the qualified archaeologist or | A. The worker education course shall take place prior to grading activities associated with off-reservation intersections/roadways. The archaeologist shall be under contract prior to grading activities associated with off-reservation intersections/roadways. The procedures for discovery shall be developed by the archaeologist prior to grading activities. B,C. These measures shall be implemented throughout grading activities associated with the off-reservation intersections/roadways. | A-C. IE: Prime Construction Contractor and Archaeologist ME: Jamul Tribe | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|--|--|--|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| <p>The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.</p> <p>paleontologist according to current professional standards.</p> <p>C. If human bone or bone of unknown origin is found during construction, all work shall stop within 50 feet of the find and the San Diego County Coroner and the Tribe shall be contacted immediately. If the remains are determined to be Native American, the coroner shall notify the Native American Heritage Commission (NAHC) who shall identify the most likely descendant. The most likely descendant shall work with the Tribe and the Lead Agency, as appropriate, to develop a plan for re-interment of the human remains and any associated artifacts. No additional work shall take place within the immediate vicinity of the find until the identified actions have been implemented.</p> | | | | | |
| <p>4. Off Site Intersection Improvements</p> <p>A. Implement Mitigation Measures 4.6(2) and 4.12(6) to reduce potential Hazardous Materials impacts to a less than significant level.</p> <p>B. Prior to grading activities for any intersections impacting jurisdictional waters, the improvement plans shall include a design that shows improvements to be located outside of the ordinary high water mark. If unable to design outside of high water make, the developer shall acquire a Clean Water Act Section 404 Permit from the USACOE prior to undertaking any grading activities. Permit conditions typically include the purchase of in-lieu credits at a mitigation bank as well as the implementation of Best Management Practices during construction activities.</p> <p>C. Prior to development of any of the intersection improvement areas, impacted protected habitats (grasslands, coastal scrub, coast live oak riparian forest) shall be mitigated at the ratio specified by the Biological Mitigation Ordinance, which vary from 0.5:1 to 3:1 depending upon the Tier category and whether or not the land is in a Biological Resource Core Area (either by in lieu fee payment or by deed restriction of qualified lands),</p> <p>D. Implement Mitigation Measure 4.15(2)(B) to reduce potential Jurisdictional Waters impacts to a less than significant level.</p> <p>E. Implement Mitigation Measure 4.15(4) to reduce biological resource impacts to a less than significant level.</p> | <p>A. Throughout construction activities.</p> <p>B, D. Prior to commencement of construction activities, final plans shall show improvements being located outside the high water mark. If this is not possible, a 404 Permit shall be secured prior to any construction activities related to the access road.</p> <p>C, G. Prior to grading of off-reservation intersections/roadways.</p> <p>E. See G(2) above.</p> <p>F. See G(3) above.</p> <p>H. Prior to commencement of construction activities, final plans shall have notes to reflect identified measures. Identified measures shall be implemented throughout construction activities.</p> | <p>A. IE: Prime Construction Contractor/Registered Site Assessor</p> <p>ME: Jamul Tribe</p> <p>B, D, H.</p> <p>IE: Architect/Civil Engineer and Prime Construction Contractor</p> <p>ME: Jamul Tribe</p> <p>C, G. IE: Architect/Civil Engineer, Jamul Tribe and Prime Construction Contractor</p> <p>ME: Jamul Tribe</p> <p>E. See G(2) above.</p> <p>F. See G(3) above.</p> | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|---|--------|---|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| <p>The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01.</p> <p>F. Implement Mitigation 4.15-5 to reduce cultural resource impacts to a less than significant level.</p> <p>G. Prior to development of the intersection improvement areas, any impacted County-protected plants (Group A Plants defined by County PDS), such as San Diego thornmint or Palmer's Goldenbush, shall be compensated at a 3:1 acreage ratio (either in lieu fee payment to the County or by deed restriction of qualified lands) to the satisfaction of the County of San Diego Director of Planning and Development Services.</p> <p>H. The following Best Management Practices shall be implemented to protect water bodies from impacts:</p> <ol style="list-style-type: none"> (1) create and implement a Hazardous Materials Management Plan and Spill Response Plan, including the identification of specific refueling areas, (2) create and implement an erosion control plan and a sediment monitoring plan, including the placement of jute mats, straw bales and wattles, sand bags, and vegetative covers (e.g. Hydroseed), weather monitoring, and specific inspection protocols, (3) designated concrete washout areas and other filters for construction materials, (4) a visual monitoring program and a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, (5) create and implement a Hazardous Materials Management Plan and Spill Response Plan, including the identification of specific refueling areas, (6) create and implement an erosion control plan and a sediment monitoring plan, including the placement of jute mats, straw bales and wattles, sand bags, and vegetative covers (e.g. Hydroseed), weather monitoring, and specific inspection protocols, (7) designated concrete washout areas and other filters for construction materials, and (8) a visual monitoring program and a chemical monitoring program for "non-visible" pollutants to be implemented | | | | | |

| Mitigation Measure | Timing | Implementing Entity (IE)/ Monitoring Entity (ME) | Compliance | | Remarks |
|---|--------|---|---------------|--------------|---------|
| | | | Date/Initials | Action Taken | |
| The Tribe will make good faith efforts to implement the mitigation measures below in accordance with the terms of Tribal Ordinance 2011-01. if there is a failure of BMPs. | | | | | |

APPENDIX 11

*JAMUL GAMING FACILITY
SUBAREA MASTER PLAN FOR POTABLE WATER SERVICE*

JAMUL INDIAN VILLAGE
CASINO DEVELOPMENT PROJECT

SUBAREA MASTER PLAN
FOR POTABLE
WATER SERVICE

Prepared for:

The Otay Water District
Project No. D0388

Prepared by:

Martin & Ziemniak
9180 Camino Santa Fe
San Diego, CA 92121
(858) 831 – 9420

August, 2006




SUBAREA WATER MASTER PLAN
JAMUL INDIAN VILLAGE
CASINO DEVELOPMENT PROJECT

AUGUST, 2006

Otay Water District Project No. D0388
Martin & Ziemniak Job No. 205121.00


Prepared By:
Martin & Ziemniak
7576 Trade Street, Suite B
San Diego, CA 92121
(858) 831 - 9420

By: 
David J. McCargar, P.E.
Project Engineer

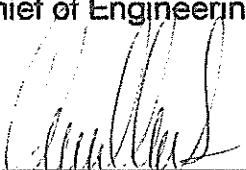


Approved By:

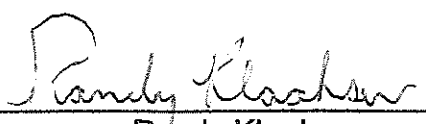
Otay Water District
2554 Sweetwater Springs Boulevard
Spring Valley, CA 91978

By: 
Rod Posada
Chief of Engineering

Date: 10/2/06

By: 
Pedro Porras
Chief of Engineering

Date: 9-29-06

By: 
Randy Klaahsm
Senior Civil Engineer, Planning

Date: 9/28/06

**JAMUL INDIAN VILLAGE CASINO DEVELOPMENT PROJECT
SUBAREA MASTER PLAN**

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| Figure 1-2 | Site/Area/Parcel Map |
| Figure 1-3 | Proposed Phasing and Site Development Plan |
| Figure 3-1 | Villages 14 & 16 Location Map |

JAMUL INDIAN VILLAGE CASINO DEVELOPMENT PROJECT SUBAREA MASTER PLAN

Appendices

| | |
|--------------|--|
| Appendix – A | Steady State Hydraulic Analysis Summary Tables- Demand Scenario without Reclamation |
| Appendix – B | Steady State Hydraulic Analysis Summary Tables- Demand Scenario without Reclamation |
| Appendix – C | HydroScience Water, Wastewater, Recycled Water Feasibility Study, November 2002 |

JAMUL INDIAN VILLAGE CASINO DEVELOPMENT PROJECT SUBAREA MASTER PLAN

EXECUTIVE SUMMARY

The 6-acre Jamul Indian Village Casino/Hotel Project will receive water service from the Otay Water District's Regulatory Water System (1296 Pressure Zone). The recommended potable water pipelines internal to the Casino/Hotel site have been sized in accordance with Otay Water District design criteria to ensure that adequate service is provided during both phases of development. However, they will be private systems owned and operated by the Jamul Indian Village. The recommended private on-site water facilities consist of 6-inch and 10-inch domestic and fire prevention water distribution pipelines. The facilities recommended in this sub-area master plan will be designed to meet all fire flow, pressure, storage, and capacity requirements of Otay Water District and the San Diego County Rural Fire District in effect at the time the plan is approved. The design will also incorporate the American Water Works Association recommendations and requirements for private systems.

The proposed 6-acre development will be undertaken in two phases. Phase A will consist of the relocation of the existing residences from the reservation to an offsite location along with the construction of the Casino on the site. The entire first phase of the project, Phase A, will include construction of the casino, parking garage, human resource facility, fire prevention facility and a wastewater treatment plant owned and operated by the Jamul Indian Village. Phase B of the project will include the construction of a hotel connected to the casino. Figure 1-3 provides a detailed overview of the phasing and development plan.

The total estimated potable water average day demand for development is 115 gpm upon completion of Phase A. An additional 28 gpm will be required for Phase B construction development resulting in a complete build-out average day demand of 143 gpm. These demands can be reduced by approximately 60% through the use of on-site recycled water (meeting the USEPA imposed California Department of Health Services Title 22 requirements for recycled water) for toilet flushing in the casino and hotel along with landscape irrigation uses. (See Chapter 1, Introduction for further discussion). Therefore, at the projected project build-out the total average day demand for potable water, with the use of recycled water, is reduced to 54 gpm upon completion of Phase B. However, the private potable water facilities proposed herein have been designed to meet both maximum day plus fire flow (286 gpm) and peak hour (428 gpm) demand scenarios anticipated to occur at the completion of Phase B without the use of recycled water.

CHAPTER 1

INTRODUCTION

This document provides a subarea master plan (SAMP) of domestic, fire and recycled water for the Jamul Indian Casino project. This document provides information concerning water demands, existing facilities, available capacity and storage associated with serving this project. The subarea master plan is compatible with the August 2002 Otay Water District Water Resources Master Plan, and the recommended distribution plan is adequate to meet the ultimate need of future developments in the area. The design of the potable and fire water facilities shall be to the satisfaction and meet the standards of the Otay Water District and the San Diego County Rural Fire District. The design of the Wastewater Treatment Plant and use of recycled water for irrigation uses shall be to the satisfaction of the USEPA by adhering to the full requirements of the California Department of Health Services, Title 22, Water Recycling Criteria and to the California RWQCB by adhering to its Basin Plan objectives for the protection of surrounding groundwater, (see Section 5-Wastewater Disposal, of the HydroScience Jamul Indian Village Feasibility Study, November 2002, attached hereto as Appendix D).

PROJECT OVERVIEW

The Jamul Indian Casino site is located in eastern San Diego County approximately one mile south of the community of Jamul. The project site is split by Melody Road, and bounded by residential and vacant land to the north, vacant and residentially developed land to the west, vacant open space designated land to the south, and State Route 94 to the east. Figure 1-1 maps the location for the project and Figure 1-2 shows the project site boundaries in relation to adjacent developments and the Otay Water District's existing and planned distribution mains within the 1296 Pressure Zone.

DEVELOPMENT PLAN

The proposed development consists of approximately 6 acres on one parcel owned by the Jamul Indian Tribe. The Jamul Indian Casino development includes the casino, a restaurant, a human resources facility, a hotel, a fire protection facility, and an on-site wastewater treatment facility.

The proposed elevation of the building pad is approximately 894 feet. Figure 1-3 provides a rough grading plan identifying the location and elevation of the building pad. Table 1-1 (below) provides a land use summary and estimated wastewater production rates.

TABLE 1-1

Land Use Summary/Average Wastewater Production

| Land Use Description | Gross Area (square feet) | Dwelling Units | Estimated Daily Occupancy (employees and patrons) | Estimated Average Wastewater Production (gpd) |
|--------------------------|--------------------------|----------------|---|---|
| Casino Gaming Floor | 205,194 | ----- | 1,696 + 9,756 | 123,000 |
| Restaurant | 25,956 | ----- | 59 + 630 | 32,385 |
| Human Resources Facility | 30,000 | ----- | 72 | 720 |
| Hotel ^a | 361,900 | ----- | 88 + 720 | 37,760 |
| Fire Protection Facility | | ----- | 15 | 1,500 |
| Phase A Net ^b | | ----- | 11,908 | 157,605 |
| Phase B Net ^c | | ----- | 12,716 | 195,365 |

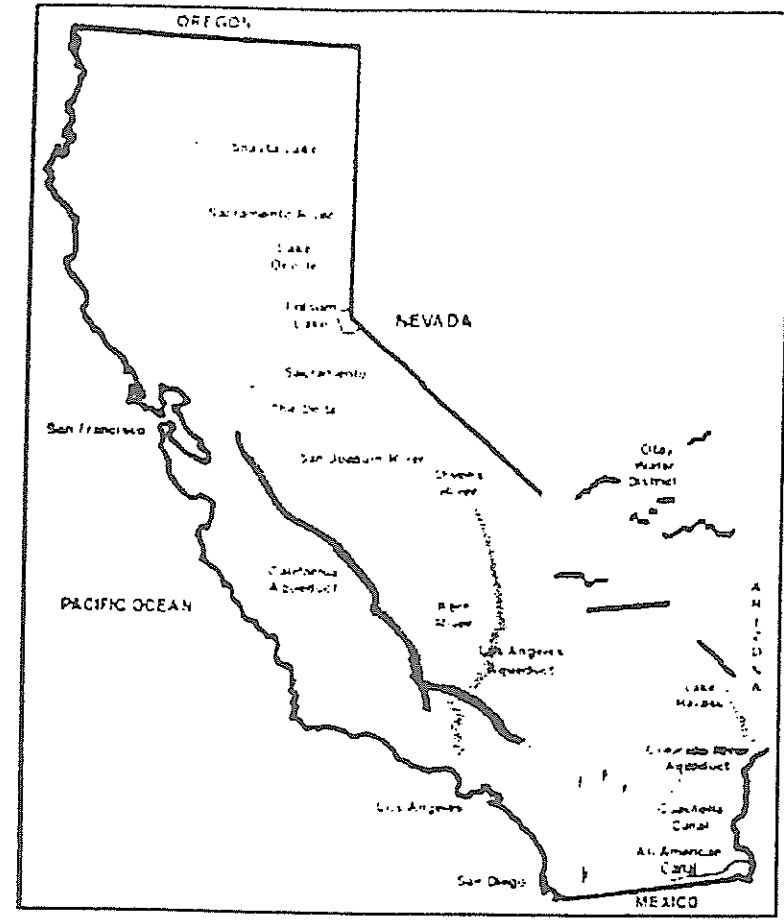
^a Assumes 100 gpd/guest, 2 guests/room, 90% occupancy

^b Excludes Phase B construction of hotel

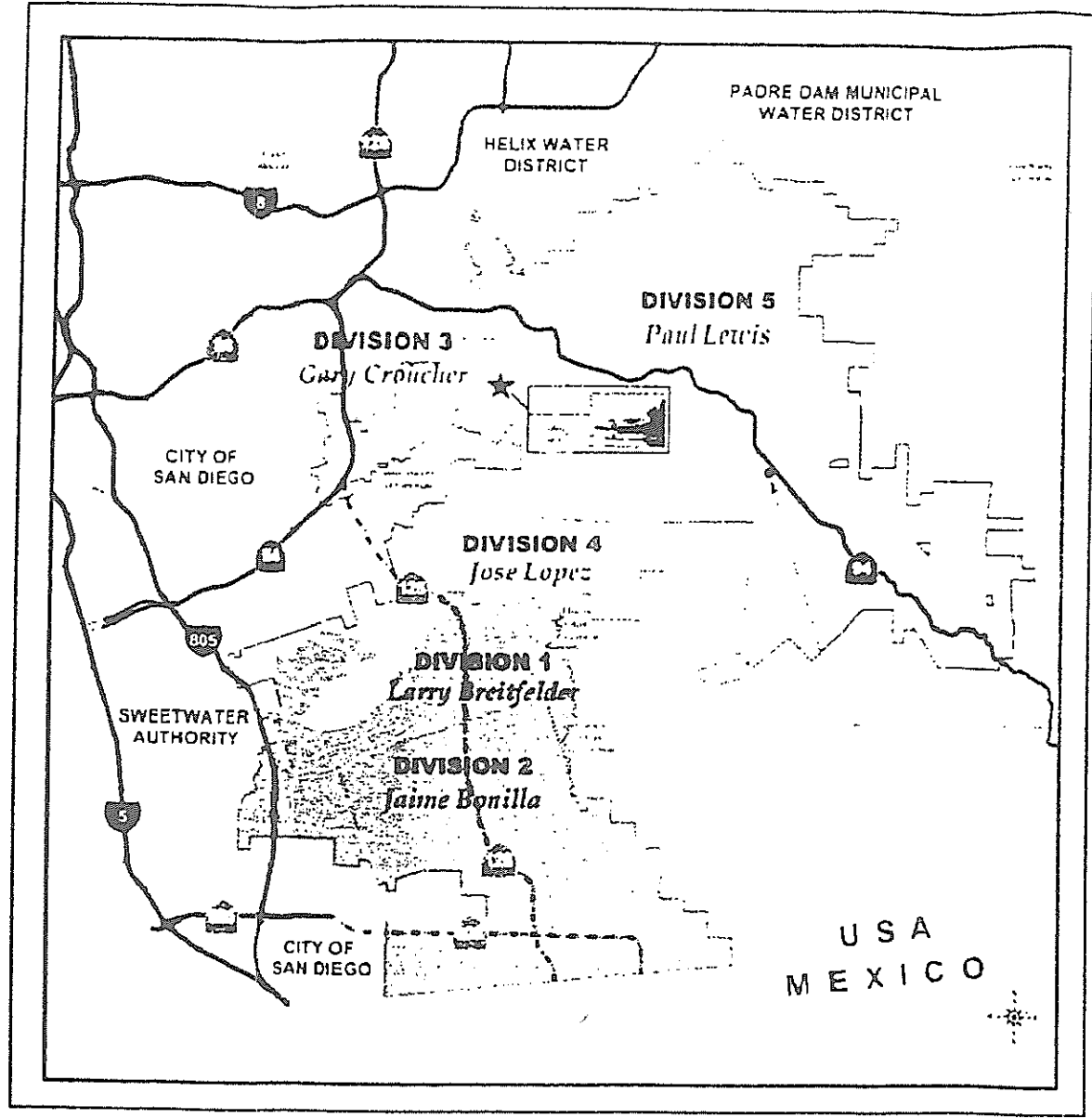
^c Used for design, includes Phase B construction



C DIVISION OF
JOHN A. MARTIN
& ASSOCIATES, INC.
Structural & Civil Engineers
7001 Alcala Drive, Suite 200
San Diego, CA 92121
Phone (619) 497-2118
Fax (619) 497-0429



VICINITY MAP

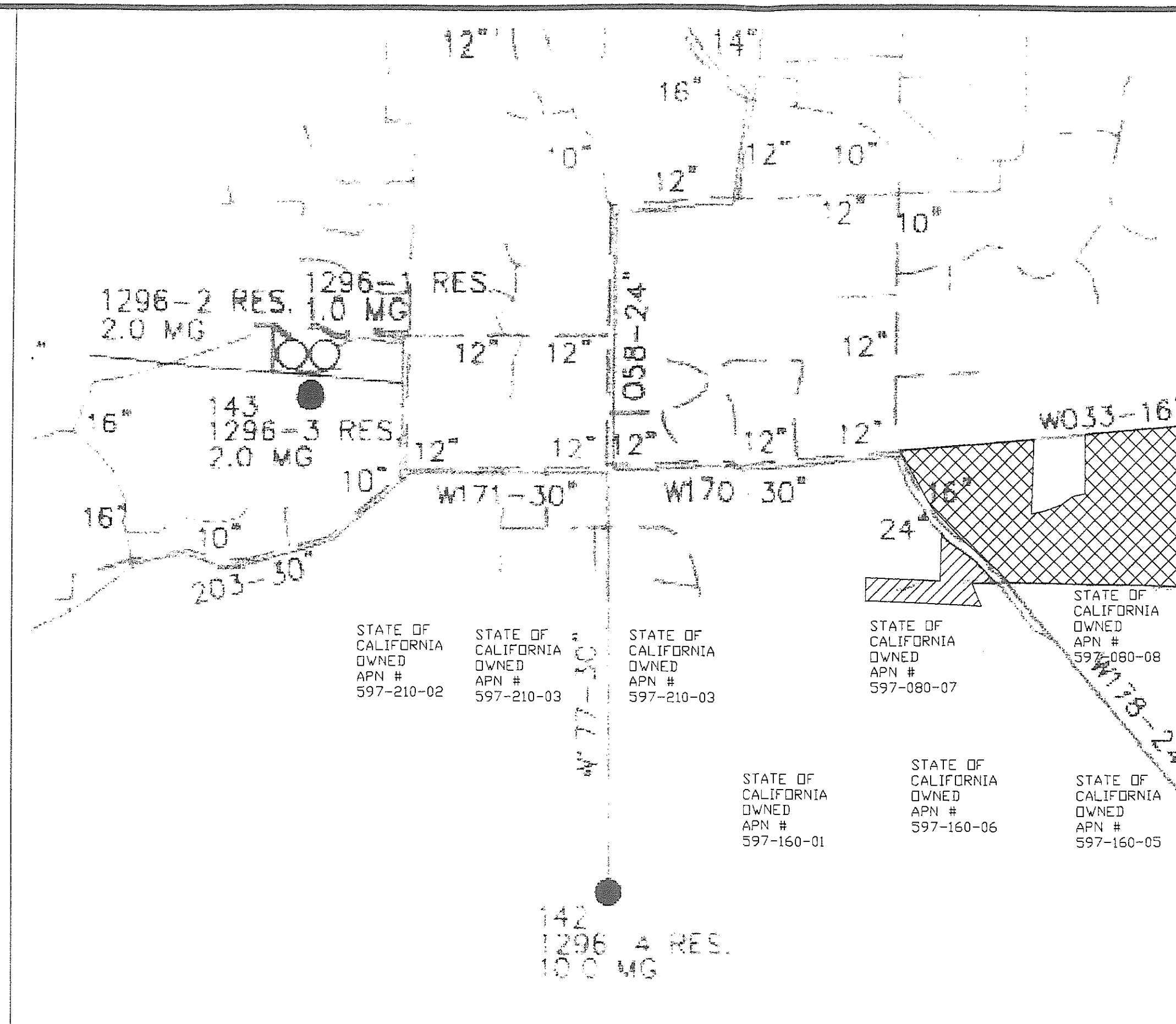
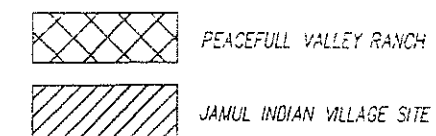


LOCATION MAP

PROJECT SITE

| |
|--|
| JAMUL INDIAN VILLAGE CASINO DEVELOPMENT PROJECT |
| VICINITY AND SITE MAP |

FIGURE 1-2

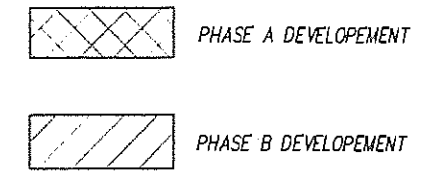


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CIVIL ENGINEERING
AND
LAND SURVEYING
7576 Trade St., Suite B
San Diego, CA 92121
Phone (858) 831-9420
FAX (858) 831-9421

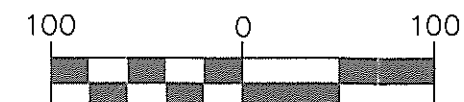
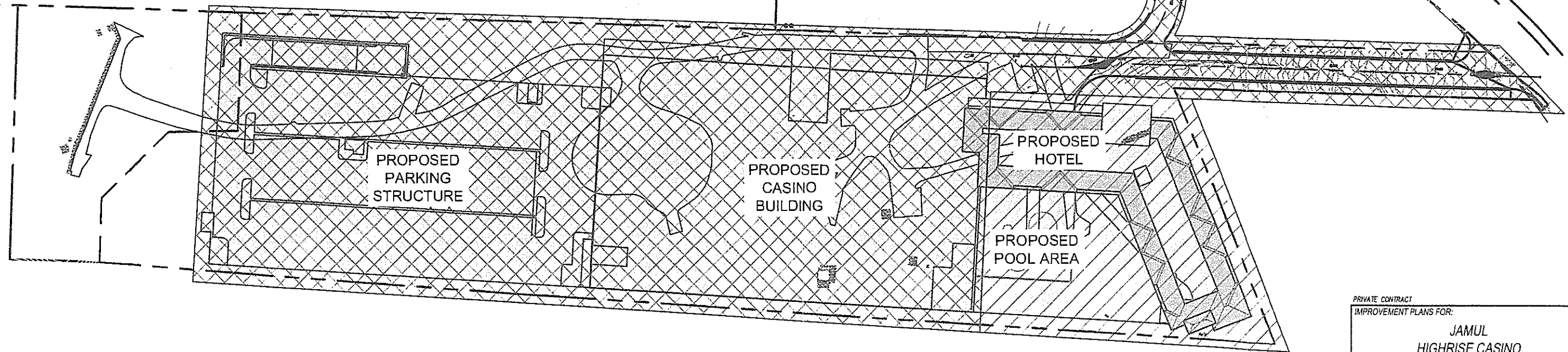
PRIVATE CONTRACT
IMPROVEMENT PLANS FOR:
JAMUL
HIGHRISE CASINO
SITE/AREA/PARCEL MAP AND OTAY WATER DISTRICT
1296 PRESS. ZONE DISTRIBUTION MAIN LOCATION MAP
SCALE: 1" = 200' SHEET 1 OF 1

v:\Land Projects 5\20512100\dwg\SHEETS\EXHIBITS\Phasing and site development.dwg 4/10/2006 11:10:06 AM PST

FIGURE 1-3



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San Diego, CA 92121
Phone (858) 831-9420
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PHASING
AND SITE DEVELOPEMENT
SCALE: 1" = 100' SHEET 1 OF 1

CHAPTER 2

DESIGN CRITERIA

The criteria utilized in this document are established in accordance with the August 2002 *Otay Water District Water Resources Master Plan*, *Draft Jamul Indian Village Tribal Environmental Impact Statement* (Analytical Environmental Services, March 2006), the HydroScience Engineers November 2002 *Water, Wastewater, Recycled Water Feasibility Study*, the 1998 Uniform Fire Code, and the 1999 American Water Works Association standards and guidelines. The design criteria are utilized for design and sizing of proposed on-site improvements and expansion of the existing Otay water distribution system to serve the Jamul Indian Casino while accommodating the existing Regulatory system demands and future development within the Otay Water District.

POTABLE AND FIRE WATER DESIGN

The potable and fire prevention water distribution systems have been designed to maintain static pressures between 65 and 200 psi. Computer modeling was performed to ensure that adequate residual pressures are obtained under all demand conditions. The two water distribution systems, consisting of a domestic water line and a separate fire prevention water line has been designed not to exceed a maximum static pressure of 200 psi nor fall below a minimum of 40 psi residual pressure at any location during a peak hour demand scenario and a minimum residual pressure of 20 psi during a maximum day demand plus fire flow scenario. The purpose of separating the domestic and fire water lines is that fire prevention water service does not require flow metering. The combination of domestic and fire prevention water lines would require a much larger site distribution main and metering system. The cost savings to run independent systems is significant and therefore is warranted. Per a meeting with Otay Water District on July 12, 2004 this scenario is feasible and acceptable. All on-site potable water systems will be permanent private systems. Water mains are sized to maintain a maximum velocity of 10 feet per second under a maximum day plus fire flow scenario and a maximum velocity of 6 feet per second under peak hour flow conditions.

The water demands without use of recycled water are estimated using the average wastewater flow from Table 1-1 and assuming a system loss of 5% from supply to wastewater capture. Table 2-1 shows the demands of the proposed water system without use of recycled water.

The recommended design of the Jamul Indian Casino, however, includes a wastewater treatment reclamation plant which will treat all wastewater created by the development to a level sufficient to allow its beneficial reuse as irrigation and toilet and urinal sanitation demand requirements. Dual plumbing will be used for toilets and urinals at all project facilities. Table 2-2, therefore, adjusts the total average day potable water demand estimated in Table 2-1 by applying typical toilet and urinal use percentages from the

various facilities. This information is taken from the November 2002 HydroScience Feasibility Study (Appendix D). However, water distribution network is designed based upon demand criteria computed without the use of reclamation and tabulated in Table 2-1 Estimated Potable Water Demands for Jamul Indian Casino.

The Otay Municipal Water District will not own, operate, or maintain any portion of the wastewater treatment reclamation plant or any portion of the proposed recycled water system facilities. The project proponents are solely responsible.

TABLE 2-1

Estimated Potable Water Demands for Jamul Indian Village

| Land Use Description | Estimated Average Wastewater Production (gpd) ^a | Estimated Water Demand (gpd) ^c | Design Average Day Demand (gpm) | Maximum Day Demand (gpm) ^d | Peak Hour Demand (gpm) ^e |
|--------------------------|--|---|---------------------------------|---------------------------------------|-------------------------------------|
| Casino | 123,000 | 129,474 | 90 | 180 | 270 |
| Restaurant | 32,385 | 34,089 | 24 | 48 | 72 |
| Human Resources Facility | 720 | 758 | 0.5 | 1 | 1.5 |
| Hotel ^b | 37,760 | 39,748 | 28 | 56 | 112 |
| Fire Protection Facility | 1,500 | 1,579 | 1 | 2 | 3 |
| Phase A Net | 157,605 | 165,900 | 115 | 230 | 346 |
| Phase B Net | 195,365 | 205,648 | 143 | 286 | 428 |

^a Values from Table 1

^b Phase B construction values not included in Phase A Net

^c Assumed 5% increase (system loss) from estimated wastewater production rates

^d Peaking factor of 2.0 applied consistent with AWWA guidelines for water system design (Mays, 1999) and per *Draft Jamul Indian Village Tribal Environmental Impact Statement* (Analytical Environmental Services, March 2006)

^e Peaking factor of 3.0 applied from AWWA guidelines (Mays, 1999) and per *Draft Jamul Indian Village Tribal Environmental Impact Statement* (Analytical Environmental Services, March 2006)

TABLE 2-2

Estimated Water Demands *with Reclamation* for Jamul Indian Village^a

| Land Use Description | Typical Toilet Flushing % at Varying Facilities ^{b, c} | Design Average Day Demand (gpm) ^d | Maximum Day Demand (gpm) | Peak Hour Demand (gpm) ^e |
|--------------------------|---|--|--------------------------|-------------------------------------|
| Casino | 80% | 18 | 36 | 54 |
| Restaurant | 30% | 16 | 32 | 48 |
| Human Resources Facility | 80% | 0.1 | 0.2 | 0.3 |
| Hotel ^f | 30% | 19 | 38 | 57 |
| Fire Protection Facility | 40% | 1 | 2 | 3 |
| Phase A Net | ----- | 35 | 70 | 105 |
| Phase B Net | ----- | 54 | 107 | 161 |

^a Assumes that estimated 60 gpm Phase B site irrigation demand is satisfied by reclamation process from wastewater treatment plant

^b HydroScience Jamul Indian Village Feasibility Study, November 2002

^c Assumed % usage

^d Adjusted demands from Table 2-1 using toilet flushing percentages

^e Recommended water supply capacity

^f Values not included in Phase A Net

CHAPTER 3

EXISTING POTABLE WATER FACILITIES

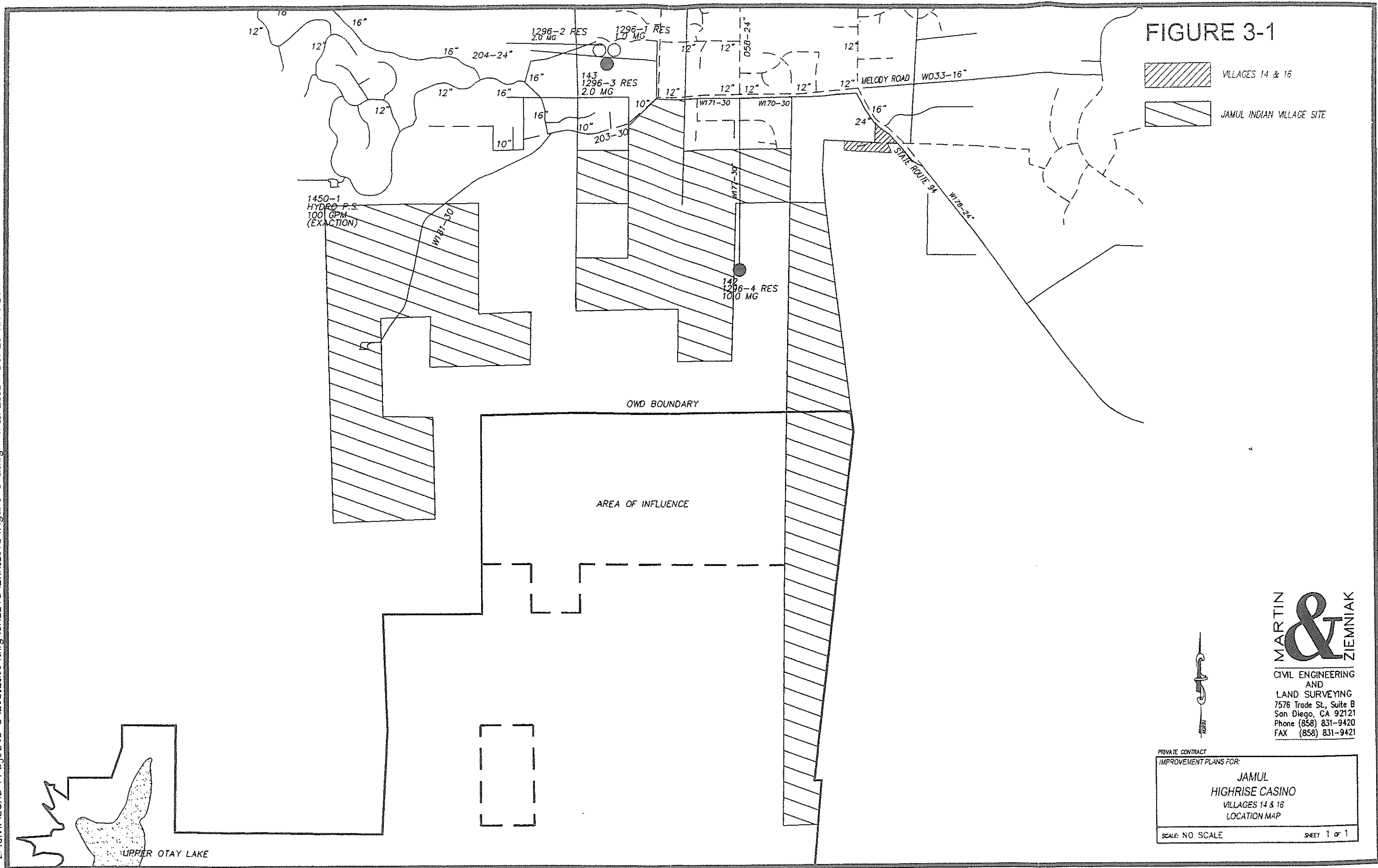
The potable water required by the proposed development of the Jamul Indian Casino will be supplied to the site by the Otay Water District, which currently obtains its water supply for the Regulatory System from the San Diego County Water Authority's (SDCWA) Otay FCF No.11 on Pipeline No. 4 of the SDCWA Second San Diego Aqueduct. The water supply is conveyed by gravity from FCF No. 11 through a 36-inch transmission pipeline main to the Regulatory Reservoirs. The water is pumped and stored through a series of pump stations and reservoirs until it reaches the Jamul Indian Casino (1296 pressure zone). From the 1296-1 pump station the water is pumped through 12-inch diameter transmission pipelines at a consistent capacity of 3300 gpm to reservoir 1296-1 and reservoir 1296-2, which combine to provide a capacity of 3.04 million gallons of water storage. The 1485-1, the Vista Diego 1530-1, and the Rancho Jamul 1655-1 pump stations, which pump water out of the 1296 zone have firm capacities of 860, 260, and 620 gpm respectively (based on information directly from the Otay Water District Master Plan).

Based on the Otay Water District's Master Plan the existing net emergency reserve for the 1296 pressure zone is 1.08 MG, which is deficient of the stated required 1.54 MG of emergency reserve (Table 9-1 of the Otay Water District Master Plan). This translates to a net emergency reserve of approximately 70% of what is required. The current capacity for total reservoir storage volume of 3.04 MG is approximately 87% of the required 3.5 MG capacity.

The Otay Water District's Master Plan identifies these deficiencies and proposes two additional reservoirs to be added to this pressure zone by 2016. Reservoir 1296-3 with a capacity of 2 MG will be added by 2008 and reservoir 1296-4 with a capacity of 10 MG be added by 2016. The master plan accounts for future planning and development by increasing demands and pumping requirements on the system. This, in turn, increases the operational and emergency reserve components of the storage balancing calculations. The master plan's ultimate required storage for the 1296 pressure zone is met by the addition of these proposed reservoirs and incorporates projected consumption from previously planned developments that will never be developed due to some of the proposed development areas now being designated as open space areas. The areas now designated as open space include Village 14 and Village 16 now owned by the State Fish and Game Department. Figure 3-1 provides a detailed map identifying these areas in relation to the Jamul Indian Casino. Therefore, the projected ultimate consumption values are conservative due to the planned usage being decreased by open space designations.

The Otay water distribution system has two existing transmission mains adjacent to the project site. Melody Road contains a 12-inch diameter pipeline main and State Route 94 contains a 16" diameter pipeline main. There is also an existing 8-inch diameter pipeline within the current reservation land serving the existing homes.

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CHAPTER 4

RECOMMENDED POTABLE WATER FACILITIES

This section presents the analysis and results of the recommended on-site water system for the proposed Jamul Indian Village Casino Project.

The Jamul Indian Casino project site is oriented such that access to the existing 16-inch AC water main within State Route 94 along the project's western perimeter is suitable to obtain water supply. The site will have a domestic system and a separate dedicated fire prevention system that significantly reduces the site distribution mains and meter sizes. Two main connections are recommended to adequately supply the water demands to the proposed development. One connection is a 6-inch domestic potable water with 6-inch meter and backflow prevention device and one 10-inch connection is for fire prevention water. Both proposed water supply connections are located approximately 560 feet northwest of the current 8-inch connection that supplies water to the existing reservation homes along State Route 94. This existing 8-inch connection will be disconnected and the pipe abandoned in place. The attached exhibits show the proposed water laterals and their corresponding connection points to the existing 16-inch water main (see maps W-A in Appendix C of this report). In addition to the maps in Appendix C, the following Figure 4-1 has been included to give an overall detail of the piping network that will serve this site.

The water modeling system used to perform hydraulic analysis for various demand scenarios on the proposed water laterals is WaterCAD® v7.0 developed by Haestad Methods, Inc. The solution of the model is based on the use of the Hazen-Williams equation and uses a Hazen-Williams coefficient of 150 for PVC piping, 135 for copper piping, and 140 for the existing AC distribution pipeline mains in Melody Lane and State Route 94. The analysis was performed similar to the Otay Water District's Master Plan, which assumes that all inflows and outflows to the zone are operating at their firm (steady) capacities. Therefore, the model was run assuming that the available flow at the development site is as follows:

$$\begin{array}{lcl} \text{Firm Cap. In} & \text{Firm Cap. Out} & \text{Exist. Consumption (1296 only)} \\ 3300 \text{ gpm} & - (260 \text{ gpm} + 620 \text{ gpm} + 860 \text{ gpm}) & - (396 \text{ gpm}) \\ \\ = 1164 \text{ gpm (1.68 MG)} \end{array}$$

The existing consumption, in the equation above, by the 1296 zone is 396 gpm (Table 4-2 of the Draft Otay Water District Master Plan). The existing inflow (firm capacity of pump station 1296-1) to the 1296 zone is 3300 gpm. The existing outflow (firm capacities of Vista Diego 1530-1, 1485-1, and 1655-1 pump stations plus existing consumption) is 1880 gpm plus 396 gpm for a total of 2136 gpm. Therefore, the net inflow to the existing 1296 reservoirs is 3300 gpm minus 2136 gpm, which equals 1164 gpm or 1.68 MGD. Flow at the development site is, therefore, adequate given that the

proposed water system for the Jamul Indian Village Casino requires a maximum of 428 gpm or 0.61 MGD (peak hour demand).

The Haestad Methods computer model was run using the demand values from Tables 2 & 3 for Average Day (Base) Demands, Maximum Day Demand plus Fire Flow Demands and Peak Hour Demands. Tabular Data showing results of each scenario with and without the use of reclaimed water is included at the end of this report in Appendix A. Table 4-1 (below) identifies the fire flow demands and durations taken from the 1998 Uniform Fire Code, Table A-III-A-1, 'Minimum Required Fire Flow and Flow Duration for Buildings'. For the purposes of this report it was assumed that all non-residential facilities are constructed per the Building Code as Type II or Type III One-Hr.

Table 4-1
Estimated Fire Flow Requirements and Durations

| Land Use Designation | Required Fire Flow (gpm) ^a | Fire Flow (gpm) at hydrant(s) with Building Sprinkler System ^b | Required Fire Flow Duration (hrs.) |
|----------------------------|---------------------------------------|---|------------------------------------|
| Casino | 3500 | 1500 | 4 |
| Restaurant | 3500 | 1500 | 2 |
| Human Resources Facilities | 3500 | 1500 | 2 |
| Hotel | 3500 | 1500 | 4 |
| Fire Protection Facility | 3500 | 1500 | 2 |

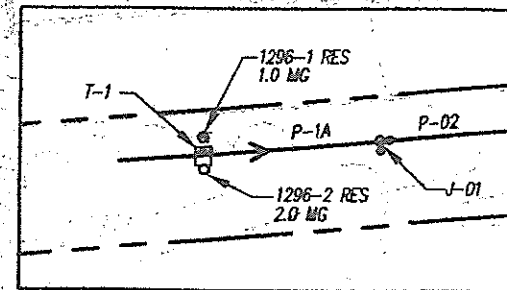
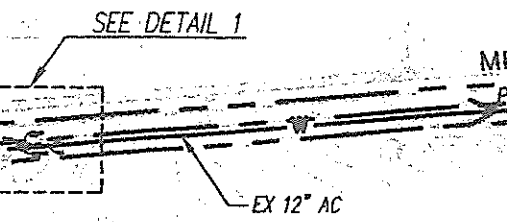
^a Values taken from 1997 Uniform Fire Code, Table A-III-A-1 for Type II & III One-HR. Construction

^b Up to 75% reduction but not less than 1500 at hydrant(s)

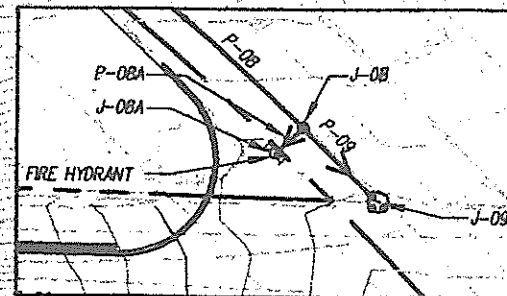
^c Per Division III, Appendix III-A, Section 5.1 of the 1997 Uniform Fire Code each single family dwelling not exceeding 3,600 square feet must have 1000 gpm for 2 hours

OTAY MUNICIPAL WATER DISTRICT
1296 - PRESSURE ZONE
FIGURE 4-1

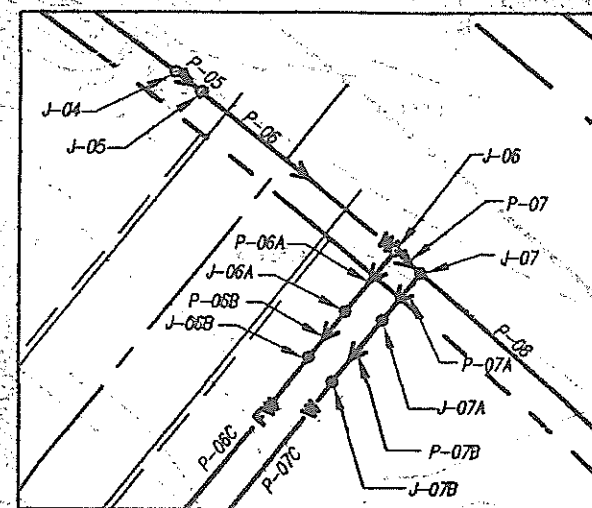
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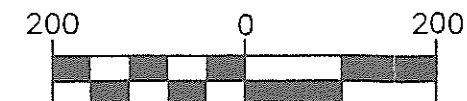
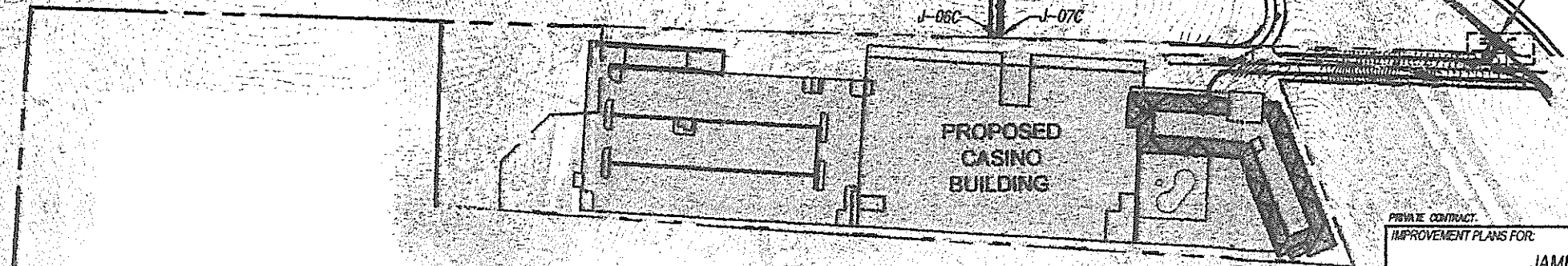
DETAIL 1
SCALE: 1" = 30'



DETAIL 2
SCALE: 1" = 30'



DETAIL 3
SCALE: 1" = 30'



PRIVATE CONTRACT
IMPROVEMENT PLANS FOR:
**JAMUL
HIGHRISE CASINO**
FIGURE 4-1 PROPOSED DOMESTIC
AND FIRE PREVENTION WATER UTILITIES
SCALE 1" = 200' SHEET 1 OF 1

CHAPTER 5

CONCLUSIONS

Given the proposed on-site use of reclaimed water for both phases of this development and the resulting reduction of potable water demands the **Average Day Demand upon completion of Phase A is 35 gallons per minute**. The Phase A **Maximum Day Demand is 70 gallons per minute**, and the **Peak Hour Demand is 105 gallons per minute**. Then upon the completion of Phase B (construction of the Hotel) the total **Average Day Demand is projected to be 54 gallons per minute**, the Phase B projected **Maximum Day Demand is 107 gallons per minute**, which results in a Phase B **Peak Hour Demand of 161 gallons per minute**.

Without use of reclaimed water for either phases of this development the **Average Day Demand upon completion of Phase A is 115 gallons per minute**. The Phase A **Maximum Day Demand is 230 gallons per minute**, and the **Peak Hour Demand is 346 gallons per minute**. Then upon the completion of Phase B (construction of the Hotel) the total **Average Day Demand is projected to be 143 gallons per minute**, the Phase B projected **Maximum Day Demand is 286 gallons per minute**, which results in a Phase B **Peak Hour Demand of 428 gallons per minute**.

All potable water piping has been sized to accommodate the ultimate demands of the system upon completion of Phase B thus not based upon the use of reclaimed water for toilet/urinals and irrigation on the proposed development. Static pressures are maintained under the maximum of 164 psi, a minimum of 40 psi residual pressure under peak hour demand flows is maintained, and a minimum residual pressure of 20 psi during maximum day demand plus fire flow can be sustained for a 4 hour period. The computer modeling tables confirm these conclusions and can be found in Appendix A of this report.

The maximum day demand for the proposed Jamul Indian Village with reclamation is 107 gpm (0.15 MGD) upon completion of Phase B. When added to the current Maximum Day demand from Table 9-1 of the Draft Otay Water District Master Plan for the 1296 pressure zone, the Maximum Day demand created by the development of the Jamul Indian Village results in an increased demand on pressure zone 1296 from 1.54 MGD to 1.69 MGD. The net emergency storage of 1.08 MG (Table 9-1 of the Draft Otay Water District Master Plan) is currently 30% deficient of the required 100% redundant storage of 1.54 MGD. The post Phase B development net emergency storage would be 36% deficient of the newly required 1.69 MGD resulting in an increased deficiency of approximately 6% as a result of this project.

Per the request of the Otay Water District, a second analysis was considered. The proposed distribution system was analyzed given the assumption that no pump stations are operating (gravity flow) on pressure zone 1296 and only the existing consumption from zone 1296 (0.57 MG from Table 4-2, Draft Otay Water District Master Plan) is removed from the 70% full supply reservoirs. The 1296 reservoirs at capacity will hold 3.03 MG (Table 6-9, Otay Water District Master Plan) and at 70% full can supply 2.12

MGD by gravity flow. Therefore, the available water for the parallel looped distribution system is 1.55 MG or 1076 gpm. Given that the supply for this scenario exceeds the supply with the pumps operating, the analysis and recommendations for the proposed system were developed using the more conservative and reality based approach with the pumps operating at their respective firm (steady) capacities. Therefore, tabular results of the computer model for this set of assumptions are not included in this report. Also the Otay Water District Master Plan as received includes water use on proposed developments that of recent purchases by the State Fish and Game Department will never be developed. The property that should have its demand removed from the Otay Water District Master Plan include Village 14 and Village 16 whose combined consumption would have been a greater demand than the proposed Jamul Indian Village Development.

APPENDIX A

STEADY STATE HYRAULIC ANALYSIS
OPERATING PUMP STATIONS
DEMAND SCENARIO – WITHOUT RECLAMATION

Scenario: Ave Day + Fire Flow Fire Flow Analysis Fire Flow Report

| Label | Fire Flow Iterations | Needed Fire Flow (gpm) | Total Flow Needed (gpm) | Total Flow Available (gpm) | Maximum Hydraulic Grade (ft) | Residual Pressure (psi) | Calculated Residual Pressure (psi) | Calculated Minimum System Pressure (psi) | Fire Flow Upper Limit (gpm) | Fire Flow Balanced? | Satisfies Fire Flow Constraints? | Available Fire Flow (gpm) |
|-------|----------------------|------------------------|-------------------------|----------------------------|------------------------------|-------------------------|------------------------------------|--|-----------------------------|---------------------|----------------------------------|---------------------------|
| J-01 | N/A | 6,000.00 | N/A | N/A | 1,294.27 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-02 | N/A | 6,000.00 | N/A | N/A | 1,287.04 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-03 | N/A | 6,000.00 | N/A | N/A | 1,282.81 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-04 | N/A | 6,000.00 | N/A | N/A | 1,280.74 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-05 | N/A | 6,000.00 | N/A | N/A | 1,280.51 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06 | N/A | 6,000.00 | N/A | N/A | 1,280.23 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06A | N/A | 6,000.00 | N/A | N/A | 1,280.23 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06B | N/A | 6,000.00 | N/A | N/A | 1,280.23 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06C | 5 | 6,000.00 | 6,000.00 | 6,278.53 | 1,280.23 | 20.00 | 23.36 | 40.00 | 6,500.00 | true | true | 6,278.53 |
| J-07 | N/A | 6,000.00 | N/A | N/A | 1,280.00 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07A | N/A | 6,000.00 | N/A | N/A | 1,279.99 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07B | N/A | 6,000.00 | N/A | N/A | 1,279.83 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07C | N/A | 6,000.00 | N/A | N/A | 1,279.12 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-08 | N/A | 6,000.00 | N/A | N/A | 1,279.18 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-08A | N/A | 6,000.00 | N/A | N/A | 1,278.45 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-09 | N/A | 6,000.00 | N/A | N/A | 1,279.18 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-53 | N/A | 6,000.00 | N/A | N/A | 1,280.23 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-54 | N/A | 6,000.00 | N/A | N/A | 1,280.23 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-55 | N/A | 6,000.00 | N/A | N/A | 1,279.99 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-56 | N/A | 6,000.00 | N/A | N/A | 1,279.83 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |

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Haestad Methode

martin and ziemniak
Nutrition Center

Watertown, CT 06795 USA

+1-203-755-1666

Project Engineer: Michael Long
WaterCAD v7.0 [07.00.037.00]

Scenario: Ave Day + Fire Flow Fire Flow Analysis Junction Report

| Label | Elevation (ft) | Demand (Calculated) (gpm) | Calculated Hydraulic Grade (ft) | Pressure (psi) | Minimum Pressure (psi) | Total Flow Needed (gpm) | Available Fire Flow (gpm) | Maximum Demand (Calculated) (gpm) | Has Calculation Messages? | Total Flow Available (gpm) |
|-------|-------------------|---------------------------------|---------------------------------------|-------------------|------------------------------|----------------------------------|------------------------------------|--|---------------------------------|-------------------------------------|
| J-01 | 1,008.50 | 2,136.00 | 1,294.27 | 123.64 | 123.64 | N/A | N/A | 2,136.00 | false | N/A |
| J-02 | 990.00 | 0.00 | 1,287.04 | 128.51 | 128.51 | N/A | N/A | 0.00 | false | N/A |
| J-03 | 954.00 | 0.00 | 1,282.81 | 142.26 | 142.26 | N/A | N/A | 0.00 | false | N/A |
| J-04 | 921.50 | 0.00 | 1,280.74 | 155.43 | 155.43 | N/A | N/A | 0.00 | false | N/A |
| J-05 | 922.50 | 0.00 | 1,280.51 | 154.89 | 154.89 | N/A | N/A | 0.00 | false | N/A |
| J-06 | 921.50 | 0.00 | 1,280.23 | 155.21 | 155.21 | N/A | N/A | 0.00 | false | N/A |
| J-06A | 926.67 | 0.00 | 1,280.23 | 152.97 | 152.97 | N/A | N/A | 0.00 | false | N/A |
| J-06B | 926.34 | 0.00 | 1,280.23 | 153.11 | 153.11 | N/A | N/A | 0.00 | false | N/A |
| J-06C | 899.50 | 0.00 | 1,280.23 | 164.72 | 164.72 | 6,000.00 | 6,278.53 | 0.00 | false | 6,278.53 |
| J-07 | 922.00 | 0.00 | 1,280.00 | 154.89 | 154.89 | N/A | N/A | 0.00 | false | N/A |
| J-07A | 926.67 | 0.00 | 1,279.99 | 152.86 | 152.86 | N/A | N/A | 0.00 | false | N/A |
| J-07B | 926.34 | 0.00 | 1,279.83 | 152.94 | 152.94 | N/A | N/A | 0.00 | false | N/A |
| J-07C | 890.00 | 143.00 | 1,279.12 | 168.35 | 168.35 | N/A | N/A | 143.00 | false | N/A |
| J-08 | 901.30 | 0.00 | 1,279.18 | 163.49 | 163.49 | N/A | N/A | 0.00 | false | N/A |
| J-08A | 901.30 | 1,500.00 | 1,278.45 | 163.18 | 163.18 | N/A | N/A | 1,500.00 | false | N/A |
| J-09 | 899.00 | 0.00 | 1,279.18 | 164.48 | 164.48 | N/A | N/A | 0.00 | false | N/A |
| J-53 | 922.67 | 0.00 | 1,280.23 | 154.70 | 154.70 | N/A | N/A | 0.00 | false | N/A |
| J-54 | 922.34 | 0.00 | 1,280.23 | 154.84 | 154.84 | N/A | N/A | 0.00 | false | N/A |
| J-55 | 922.67 | 0.00 | 1,279.99 | 154.59 | 154.59 | N/A | N/A | 0.00 | false | N/A |
| J-56 | 922.34 | 0.00 | 1,279.83 | 154.67 | 154.67 | N/A | N/A | 0.00 | false | N/A |

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Hastad Method: martin and ziemniak
lution Center Watertown, CT 06795 USA +1-203-755-1666

Project Engineer: Michael Long
WaterCAD v7.0 [07.00.037.00]
Page 1 of 1

Scenario: Ave Day + Fire Flow Fire Flow Analysis Pipe Report

| Label | Length (ft) | Diameter (in) | Material | Upstream Structure Hydraulic Grade (ft) | Discharge (gpm) | Minimum Velocity (ft/s) | Upstream Calculated Pressure (psi) | Downstream Calculated Pressure (psi) | Has Messages? | Maximum Discharge (gpm) | Maximum Velocity (ft/s) |
|-------|-------------|---------------|-----------------|---|-----------------|-------------------------|------------------------------------|--------------------------------------|---------------|-------------------------|-------------------------|
| P-1A | 28.00 | 12.0 | Asbestos Cement | 1,294.27 | -3,779.00 | 10.72 | 123.64 | 12.98 | false | -3,779.00 | 10.72 |
| P-02 | 930.00 | 12.0 | Asbestos Cement | 1,294.27 | 1,643.00 | 4.66 | 123.64 | 128.51 | false | 1,643.00 | 4.66 |
| P-03 | 521.00 | 12.0 | Asbestos Cement | 1,287.04 | 1,643.00 | 4.66 | 128.51 | 142.26 | false | 1,643.00 | 4.66 |
| P-04 | 1,185.00 | 16.0 | Asbestos Cement | 1,282.81 | 1,643.00 | 2.62 | 142.26 | 155.43 | false | 1,643.00 | 2.62 |
| P-05 | 5.00 | 16.0 | Asbestos Cement | 1,280.74 | 1,643.00 | 2.62 | 155.43 | 154.89 | false | 1,643.00 | 2.62 |
| P-06 | 39.00 | 16.0 | Asbestos Cement | 1,280.51 | 1,643.00 | 2.62 | 154.89 | 155.21 | false | 1,643.00 | 2.62 |
| P-06A | 12.00 | 10.0 | PVC | 1,280.23 | 0.00 | 0.00 | 155.21 | 154.70 | false | 0.00 | 0.00 |
| P-06B | 8.00 | 8.0 | Ductile Iron | 1,280.23 | 0.00 | 0.00 | 152.97 | 153.11 | false | 0.00 | 0.00 |
| P-07 | 5.00 | 16.0 | Asbestos Cement | 1,280.23 | 1,643.00 | 2.62 | 155.21 | 154.89 | false | 1,643.00 | 2.62 |
| P-07A | 9.00 | 6.0 | PVC | 1,280.00 | 143.00 | 1.62 | 154.89 | 154.59 | false | 143.00 | 1.62 |
| P-07B | 11.00 | 4.0 | Ductile Iron | 1,279.99 | 143.00 | 3.65 | 152.86 | 152.94 | false | 143.00 | 3.65 |
| P-08 | 487.00 | 16.0 | Asbestos Cement | 1,279.18 | 1,500.00 | 2.39 | 154.89 | 163.49 | false | 1,500.00 | 2.39 |
| P-08A | 6.00 | 6.0 | PVC | 1,279.18 | 1,500.00 | 17.02 | 163.49 | 163.18 | false | 1,500.00 | 17.02 |
| P-09 | 17.00 | 16.0 | Asbestos Cement | 1,279.18 | 0.00 | 0.00 | 163.49 | 164.48 | false | 0.00 | 0.00 |
| P-96 | 1.00 | 10.0 | PVC | 1,280.23 | 0.00 | 0.00 | 154.70 | 152.97 | false | 0.00 | 0.00 |
| P-97 | 1.00 | 10.0 | PVC | 1,280.23 | 0.00 | 0.00 | 153.11 | 154.84 | false | 0.00 | 0.00 |
| P-98 | 459.00 | 10.0 | PVC | 1,280.23 | 0.00 | 0.00 | 154.84 | 164.72 | false | 0.00 | 0.00 |
| P-100 | 1.00 | 6.0 | PVC | 1,279.99 | 143.00 | 1.62 | 154.59 | 152.86 | false | 143.00 | 1.62 |
| P-101 | 1.00 | 6.0 | PVC | 1,279.83 | 143.00 | 1.62 | 152.94 | 154.67 | false | 143.00 | 1.62 |
| P-102 | 455.00 | 6.0 | PVC | 1,279.83 | 143.00 | 1.62 | 154.67 | 168.35 | false | 143.00 | 1.62 |

Scenario: Max Day + Fire Flow Fire Flow Analysis Fire Flow Report

| Label | Fire Flow Iterations | Needed Fire Flow (gpm) | Total Flow Needed (gpm) | Total Flow Available (gpm) | Maximum Hydraulic Grade (ft) | Residual Pressure (psi) | Calculated Residual Pressure (psi) | Calculated Minimum System Pressure (psi) | Fire Flow Upper Limit (gpm) | Fire Flow Balanced? | Satisfies Fire Flow Constraints? | Available Fire Flow (gpm) |
|-------|----------------------|------------------------|-------------------------|----------------------------|------------------------------|-------------------------|------------------------------------|--|-----------------------------|---------------------|----------------------------------|---------------------------|
| J-01 | N/A | 6,000.00 | N/A | N/A | 1,294.22 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-02 | N/A | 6,000.00 | N/A | N/A | 1,285.77 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-03 | N/A | 6,000.00 | N/A | N/A | 1,280.84 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-04 | N/A | 6,000.00 | N/A | N/A | 1,278.41 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-05 | N/A | 6,000.00 | N/A | N/A | 1,278.14 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06 | N/A | 6,000.00 | N/A | N/A | 1,277.81 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06A | N/A | 6,000.00 | N/A | N/A | 1,277.81 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06B | N/A | 6,000.00 | N/A | N/A | 1,277.81 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06C | 5 | 6,000.00 | 6,000.00 | 6,139.49 | 1,277.81 | 20.00 | 24.51 | 40.00 | 6,500.00 | true | true | 6,139.49 |
| J-07 | N/A | 6,000.00 | N/A | N/A | 1,277.54 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07A | N/A | 6,000.00 | N/A | N/A | 1,277.49 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07B | N/A | 6,000.00 | N/A | N/A | 1,276.91 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07C | N/A | 6,000.00 | N/A | N/A | 1,274.35 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-08 | N/A | 6,000.00 | N/A | N/A | 1,276.71 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-08A | N/A | 6,000.00 | N/A | N/A | 1,275.99 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-09 | N/A | 6,000.00 | N/A | N/A | 1,276.71 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-53 | N/A | 6,000.00 | N/A | N/A | 1,277.81 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-54 | N/A | 6,000.00 | N/A | N/A | 1,277.81 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-55 | N/A | 6,000.00 | N/A | N/A | 1,277.49 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-56 | N/A | 6,000.00 | N/A | N/A | 1,276.90 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |

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Project Engineer: Michael Long
WaterCAD v7.0 [07.00.037.00]
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Scenario: Max Day + Fire Flow Fire Flow Analysis Junction Report

| Label | Elevation (ft) | Demand (Calculated) (gpm) | Calculated Hydraulic Grade (ft) | Pressure (psi) | Minimum Pressure (psi) | Total Flow Needed (gpm) | Available Fire Flow (gpm) | Maximum Demand (Calculated) (gpm) | Has Calculation Messages? | Total Flow Available (gpm) |
|-------|-------------------|---------------------------------|---------------------------------------|-------------------|------------------------------|----------------------------------|------------------------------------|--|---------------------------------|-------------------------------------|
| J-01 | 1,008.50 | 2,136.00 | 1,294.22 | 123.62 | 123.62 | N/A | N/A | 2,136.00 | false | N/A |
| J-02 | 990.00 | 0.00 | 1,285.77 | 127.97 | 127.97 | N/A | N/A | 0.00 | false | N/A |
| J-03 | 954.00 | 0.00 | 1,280.84 | 141.41 | 141.41 | N/A | N/A | 0.00 | false | N/A |
| J-04 | 921.50 | 0.00 | 1,278.41 | 154.42 | 154.42 | N/A | N/A | 0.00 | false | N/A |
| J-05 | 922.50 | 0.00 | 1,278.14 | 153.87 | 153.87 | N/A | N/A | 0.00 | false | N/A |
| J-06 | 921.50 | 0.00 | 1,277.81 | 154.16 | 154.16 | N/A | N/A | 0.00 | false | N/A |
| J-06A | 926.67 | 0.00 | 1,277.81 | 151.92 | 151.92 | N/A | N/A | 0.00 | false | N/A |
| J-06B | 926.34 | 0.00 | 1,277.81 | 152.06 | 152.06 | N/A | N/A | 0.00 | false | N/A |
| J-06C | 899.50 | 0.00 | 1,277.81 | 163.68 | 163.68 | 6,000.00 | 6,139.49 | 0.00 | false | 6,139.49 |
| J-07 | 922.00 | 0.00 | 1,277.54 | 153.83 | 153.83 | N/A | N/A | 0.00 | false | N/A |
| J-07A | 926.67 | 0.00 | 1,277.49 | 151.78 | 151.78 | N/A | N/A | 0.00 | false | N/A |
| J-07B | 926.34 | 0.00 | 1,276.91 | 151.67 | 151.67 | N/A | N/A | 0.00 | false | N/A |
| J-07C | 890.00 | 286.00 | 1,274.35 | 166.29 | 166.29 | N/A | N/A | 286.00 | false | N/A |
| J-08 | 901.30 | 0.00 | 1,276.71 | 162.42 | 162.42 | N/A | N/A | 0.00 | false | N/A |
| J-08A | 901.30 | 1,500.00 | 1,275.99 | 162.11 | 162.11 | N/A | N/A | 1,500.00 | false | N/A |
| J-09 | 899.00 | 0.00 | 1,276.71 | 163.42 | 163.42 | N/A | N/A | 0.00 | false | N/A |
| J-53 | 922.67 | 0.00 | 1,277.81 | 153.65 | 153.65 | N/A | N/A | 0.00 | false | N/A |
| J-54 | 922.34 | 0.00 | 1,277.81 | 153.80 | 153.80 | N/A | N/A | 0.00 | false | N/A |
| J-55 | 922.67 | 0.00 | 1,277.49 | 153.51 | 153.51 | N/A | N/A | 0.00 | false | N/A |
| J-56 | 922.34 | 0.00 | 1,276.90 | 153.40 | 153.40 | N/A | N/A | 0.00 | false | N/A |

Scenario: Max Day + Fire Flow Fire Flow Analysis Pipe Report

| Label | Length (ft) | Diameter (in) | Material | Upstream Structure Hydraulic Grade (ft) | Discharge (gpm) | Minimum Velocity (ft/s) | Upstream Calculated Pressure (psi) | Downstream Calculated Pressure (psi) | Has Messages? | Maximum Discharge (gpm) | Maximum Velocity (ft/s) |
|-------|----------------|------------------|-----------------|---|--------------------|-------------------------------|---|---|------------------|-------------------------------|-------------------------------|
| P-1A | 28.00 | 12.0 | Asbestos Cement | 1,294.22 | -3,922.00 | 11.13 | 123.62 | 12.98 | false | 3,922.00 | 11.13 |
| P-02 | 930.00 | 12.0 | Asbestos Cement | 1,294.22 | 1,786.00 | 5.07 | 123.62 | 127.97 | false | 1,786.00 | 5.07 |
| P-03 | 521.00 | 12.0 | Asbestos Cement | 1,285.77 | 1,786.00 | 5.07 | 127.97 | 141.41 | false | 1,786.00 | 5.07 |
| P-04 | 1,185.00 | 16.0 | Asbestos Cement | 1,280.84 | 1,786.00 | 2.85 | 141.41 | 154.42 | false | 1,786.00 | 2.85 |
| P-05 | 5.00 | 16.0 | Asbestos Cement | 1,278.41 | 1,786.00 | 2.85 | 154.42 | 153.87 | false | 1,786.00 | 2.85 |
| P-06 | 39.00 | 16.0 | Asbestos Cement | 1,278.14 | 1,786.00 | 2.85 | 153.87 | 154.16 | false | 1,786.00 | 2.85 |
| P-06A | 12.00 | 10.0 | PVC | 1,277.81 | 0.00 | 0.00 | 154.16 | 153.65 | false | 0.00 | 0.00 |
| P-06B | 8.00 | 8.0 | Ductile Iron | 1,277.81 | 0.00 | 0.00 | 151.92 | 152.06 | false | 0.00 | 0.00 |
| P-07 | 5.00 | 16.0 | Asbestos Cement | 1,277.81 | 1,786.00 | 2.85 | 154.16 | 153.83 | false | 1,786.00 | 2.85 |
| P-07A | 9.00 | 6.0 | PVC | 1,277.54 | 286.00 | 3.25 | 153.83 | 153.51 | false | 286.00 | 3.25 |
| P-07B | 11.00 | 4.0 | Ductile Iron | 1,277.49 | 286.00 | 7.30 | 151.78 | 151.67 | false | 286.00 | 7.30 |
| P-08 | 487.00 | 16.0 | Asbestos Cement | 1,277.54 | 1,500.00 | 2.39 | 153.83 | 162.42 | false | 1,500.00 | 2.39 |
| P-08A | 6.00 | 6.0 | PVC | 1,276.71 | 1,500.00 | 17.02 | 162.42 | 162.11 | false | 1,500.00 | 17.02 |
| P-09 | 17.00 | 16.0 | Asbestos Cement | 1,276.71 | 0.00 | 0.00 | 162.42 | 163.42 | false | 0.00 | 0.00 |
| P-96 | 1.00 | 10.0 | PVC | 1,277.81 | 0.00 | 0.00 | 153.65 | 151.92 | false | 0.00 | 0.00 |
| P-97 | 1.00 | 10.0 | PVC | 1,277.81 | 0.00 | 0.00 | 152.06 | 153.80 | false | 0.00 | 0.00 |
| P-98 | 459.00 | 10.0 | PVC | 1,277.81 | 0.00 | 0.00 | 153.80 | 163.68 | false | 0.00 | 0.00 |
| P-100 | 1.00 | 6.0 | PVC | 1,277.49 | 286.00 | 3.25 | 153.51 | 151.78 | false | 286.00 | 3.25 |
| P-101 | 1.00 | 6.0 | PVC | 1,276.91 | 286.00 | 3.25 | 151.67 | 153.40 | false | 286.00 | 3.25 |
| P-102 | 455.00 | 6.0 | PVC | 1,276.90 | 286.00 | 3.25 | 153.40 | 166.29 | false | 286.00 | 3.25 |

Scenario: Peak Hour Steady State Analysis Junction Report

| Label | Elevation (ft) | Demand (Calculated) (gpm) | Calculated Hydraulic Grade (ft) | Pressure (psi) | Minimum Pressure (psi) | Total Flow Needed (gpm) | Available Fire Flow (gpm) | Maximum Demand (Calculated) (gpm) | Has Calculation Messages? | Total Flow Available (gpm) |
|-------|-------------------|---------------------------------|---------------------------------------|-------------------|------------------------------|----------------------------------|------------------------------------|--|---------------------------------|-------------------------------------|
| J-01 | 1,008.50 | 2,136.00 | 1,294.17 | 123.60 | 123.60 | N/A | N/A | 2,136.00 | false | N/A |
| J-02 | 990.00 | 0.00 | 1,284.42 | 127.38 | 127.38 | N/A | N/A | 0.00 | false | N/A |
| J-03 | 954.00 | 0.00 | 1,278.73 | 140.50 | 140.50 | N/A | N/A | 0.00 | false | N/A |
| J-04 | 921.50 | 0.00 | 1,275.94 | 153.35 | 153.35 | N/A | N/A | 0.00 | false | N/A |
| J-05 | 922.50 | 0.00 | 1,275.62 | 152.78 | 152.78 | N/A | N/A | 0.00 | false | N/A |
| J-06 | 921.50 | 0.00 | 1,275.24 | 153.05 | 153.05 | N/A | N/A | 0.00 | false | N/A |
| J-06A | 926.67 | 0.00 | 1,275.24 | 150.81 | 150.81 | N/A | N/A | 0.00 | false | N/A |
| J-06B | 926.34 | 0.00 | 1,275.24 | 150.95 | 150.95 | N/A | N/A | 0.00 | false | N/A |
| J-06C | 899.50 | 0.00 | 1,274.92 | 162.56 | 162.56 | N/A | N/A | 0.00 | false | N/A |
| J-07 | 922.00 | 0.00 | 1,274.92 | 152.69 | 152.69 | N/A | N/A | 0.00 | false | N/A |
| J-07A | 926.67 | 0.00 | 1,274.81 | 150.62 | 150.62 | N/A | N/A | 0.00 | false | N/A |
| J-07B | 926.34 | 0.00 | 1,273.58 | 150.24 | 150.24 | N/A | N/A | 0.00 | false | N/A |
| J-07C | 890.00 | 428.00 | 1,268.20 | 163.63 | 163.63 | N/A | N/A | 428.00 | false | N/A |
| J-08 | 901.30 | 0.00 | 1,274.10 | 161.29 | 161.29 | N/A | N/A | 0.00 | false | N/A |
| J-08A | 901.30 | 1,500.00 | 1,273.37 | 160.98 | 160.98 | N/A | N/A | 1,500.00 | false | N/A |
| J-09 | 899.00 | 0.00 | 1,274.10 | 162.29 | 162.29 | N/A | N/A | 0.00 | false | N/A |
| J-53 | 922.67 | 0.00 | 1,275.24 | 152.54 | 152.54 | N/A | N/A | 0.00 | false | N/A |
| J-54 | 922.34 | 0.00 | 1,275.24 | 152.68 | 152.68 | N/A | N/A | 0.00 | false | N/A |
| J-55 | 922.67 | 0.00 | 1,274.82 | 152.36 | 152.36 | N/A | N/A | 0.00 | false | N/A |
| J-56 | 922.34 | 0.00 | 1,273.57 | 151.96 | 151.96 | N/A | N/A | 0.00 | false | N/A |

Scenario: Peak Hour Steady State Analysis Pipe Report

| Label | Length (ft) | Diameter (in) | Material | Upstream Structure Hydraulic Grade (ft) | Discharge (gpm) | Minimum Velocity (ft/s) | Upstream Calculated Pressure (psi) | Downstream Calculated Pressure (psi) | Has Messages? | Maximum Discharge (gpm) | Maximum Velocity (ft/s) |
|-------|----------------|------------------|-----------------|---|--------------------|-------------------------------|---|---|------------------|-------------------------------|-------------------------------|
| P-1A | 28.00 | 12.0 | Asbestos Cement | 1,294.17 | -4,064.00 | 11.53 | 123.60 | 12.98 | false | -4,064.00 | 11.53 |
| P-02 | 930.00 | 12.0 | Asbestos Cement | 1,294.17 | 1,928.00 | 5.47 | 123.60 | 127.38 | false | 1,928.00 | 5.47 |
| P-03 | 521.00 | 12.0 | Asbestos Cement | 1,284.42 | 1,928.00 | 5.47 | 127.38 | 140.50 | false | 1,928.00 | 5.47 |
| P-04 | 1,185.00 | 16.0 | Asbestos Cement | 1,278.73 | 1,928.00 | 3.08 | 140.50 | 153.35 | false | 1,928.00 | 3.08 |
| P-05 | 5.00 | 16.0 | Asbestos Cement | 1,275.94 | 1,928.00 | 3.08 | 153.35 | 152.78 | false | 1,928.00 | 3.08 |
| P-06 | 39.00 | 16.0 | Asbestos Cement | 1,275.62 | 1,928.00 | 3.08 | 152.78 | 153.05 | false | 1,928.00 | 3.08 |
| P-06A | 12.00 | 10.0 | PVC | 1,275.24 | 0.00 | 0.00 | 153.05 | 152.54 | false | 0.00 | 0.00 |
| P-06B | 8.00 | 8.0 | Ductile Iron | 1,275.24 | 0.00 | 0.00 | 150.81 | 150.95 | false | 0.00 | 0.00 |
| P-07 | 5.00 | 16.0 | Asbestos Cement | 1,275.24 | 1,928.00 | 3.08 | 153.05 | 152.69 | false | 1,928.00 | 3.08 |
| P-07A | 9.00 | 6.0 | PVC | 1,274.92 | 428.00 | 4.86 | 152.69 | 152.36 | false | 428.00 | 4.86 |
| P-07B | 11.00 | 4.0 | Ductile Iron | 1,274.81 | 428.00 | 10.93 | 150.62 | 150.24 | false | 428.00 | 10.93 |
| P-08 | 487.00 | 16.0 | Asbestos Cement | 1,274.92 | 1,500.00 | 2.39 | 152.69 | 161.29 | false | 1,500.00 | 2.39 |
| P-08A | 6.00 | 6.0 | PVC | 1,274.10 | 1,500.00 | 17.02 | 161.29 | 160.98 | false | 1,500.00 | 17.02 |
| P-09 | 17.00 | 16.0 | Asbestos Cement | 1,274.10 | 0.00 | 0.00 | 161.29 | 162.29 | false | 0.00 | 0.00 |
| P-06 | 1.00 | 10.0 | PVC | 1,275.24 | 0.00 | 0.00 | 152.54 | 150.81 | false | 0.00 | 0.00 |
| P-97 | 1.00 | 10.0 | PVC | 1,275.24 | 0.00 | 0.00 | 150.95 | 152.68 | false | 0.00 | 0.00 |
| P-98 | 459.00 | 10.0 | PVC | 1,275.24 | 0.00 | 0.00 | 152.68 | 162.56 | false | 0.00 | 0.00 |
| P-100 | 1.00 | 6.0 | PVC | 1,274.82 | 428.00 | 4.86 | 152.36 | 150.62 | false | 428.00 | 4.86 |
| P-101 | 1.00 | 6.0 | PVC | 1,273.58 | 428.00 | 4.86 | 150.24 | 151.96 | false | 428.00 | 4.86 |
| P-102 | 455.00 | 6.0 | PVC | 1,273.57 | 428.00 | 4.86 | 151.96 | 163.63 | false | 428.00 | 4.86 |

APPENDIX B

STEADY STATE HYRAULIC ANALYSIS
OPERATING PUMP STATIONS
DEMAND SCENARIO – WITH RECLAMATION

Scenario: Ave Day + Fire Flow Fire Flow Analysis Fire Flow Report

| Label | Fire Flow Iterations | Needed Fire Flow (gpm) | Total Flow Needed (gpm) | Total Flow Available (gpm) | Maximum Hydraulic Grade (ft) | Residual Pressure (psi) | Calculated Residual Pressure (psi) | Calculated Minimum System Pressure (psi) | Fire Flow Upper Limit (gpm) | Fire Flow Balanced? | Satisfies Fire Flow Constraints? | Available Fire Flow (gpm) |
|-------|----------------------|------------------------|-------------------------|----------------------------|------------------------------|-------------------------|------------------------------------|--|-----------------------------|---------------------|----------------------------------|---------------------------|
| J-01 | N/A | 6,000.00 | N/A | N/A | 1,294.31 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-02 | N/A | 6,000.00 | N/A | N/A | 1,287.78 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-03 | N/A | 6,000.00 | N/A | N/A | 1,283.97 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-04 | N/A | 6,000.00 | N/A | N/A | 1,282.10 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-05 | N/A | 6,000.00 | N/A | N/A | 1,281.90 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06 | N/A | 6,000.00 | N/A | N/A | 1,281.65 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06A | N/A | 6,000.00 | N/A | N/A | 1,281.65 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06B | N/A | 6,000.00 | N/A | N/A | 1,281.65 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06C | 5 | 6,000.00 | 6,000.00 | 6,365.02 | 1,281.65 | 20.00 | 22.64 | 40.00 | 6,500.00 | true | true | 6,365.02 |
| J-07 | N/A | 6,000.00 | N/A | N/A | 1,281.44 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07A | N/A | 6,000.00 | N/A | N/A | 1,281.44 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07B | N/A | 6,000.00 | N/A | N/A | 1,281.42 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07C | N/A | 6,000.00 | N/A | N/A | 1,281.30 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-08 | N/A | 6,000.00 | N/A | N/A | 1,280.62 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-08A | N/A | 6,000.00 | N/A | N/A | 1,279.89 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-09 | N/A | 6,000.00 | N/A | N/A | 1,280.62 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-53 | N/A | 6,000.00 | N/A | N/A | 1,281.65 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-54 | N/A | 6,000.00 | N/A | N/A | 1,281.65 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-55 | N/A | 6,000.00 | N/A | N/A | 1,281.44 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-56 | N/A | 6,000.00 | N/A | N/A | 1,281.42 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |

Scenario: Ave Day + Fire Flow Fire Flow Analysis Junction Report

| Label | Elevation (ft) | Demand (Calculated) (gpm) | Calculated Hydraulic Grade (ft) | Pressure (psi) | Minimum Pressure (psi) | Total Flow Needed (gpm) | Available Fire Flow (gpm) | Maximum Demand (Calculated) (gpm) | Has Calculation Messages? | Total Flow Available (gpm) |
|-------|-------------------|---------------------------------|---------------------------------------|-------------------|------------------------------|----------------------------------|------------------------------------|--|---------------------------------|-------------------------------------|
| J-01 | 1,008.50 | 2,136.00 | 1,294.31 | 123.65 | 123.65 | N/A | N/A | 2,136.00 | false | N/A |
| J-02 | 990.00 | 0.00 | 1,287.78 | 128.84 | 128.84 | N/A | N/A | 0.00 | false | N/A |
| J-03 | 954.00 | 0.00 | 1,283.97 | 142.76 | 142.76 | N/A | N/A | 0.00 | false | N/A |
| J-04 | 921.50 | 0.00 | 1,282.10 | 156.02 | 156.02 | N/A | N/A | 0.00 | false | N/A |
| J-05 | 922.50 | 0.00 | 1,281.90 | 155.50 | 155.50 | N/A | N/A | 0.00 | false | N/A |
| J-06 | 921.50 | 0.00 | 1,281.65 | 155.82 | 155.82 | N/A | N/A | 0.00 | false | N/A |
| J-06A | 926.67 | 0.00 | 1,281.65 | 153.58 | 153.58 | N/A | N/A | 0.00 | false | N/A |
| J-06B | 926.34 | 0.00 | 1,281.65 | 153.73 | 153.73 | N/A | N/A | 0.00 | false | N/A |
| J-06C | 899.50 | 0.00 | 1,281.65 | 165.34 | 165.34 | 6,000.00 | 6,365.02 | 0.00 | false | 6,365.02 |
| J-07 | 922.00 | 0.00 | 1,281.44 | 155.51 | 155.51 | N/A | N/A | 0.00 | false | N/A |
| J-07A | 926.67 | 0.00 | 1,281.44 | 153.49 | 153.49 | N/A | N/A | 0.00 | false | N/A |
| J-07B | 926.34 | 0.00 | 1,281.42 | 153.62 | 153.62 | N/A | N/A | 0.00 | false | N/A |
| J-07C | 890.00 | 54.00 | 1,281.30 | 169.30 | 169.30 | N/A | N/A | 54.00 | false | N/A |
| J-08 | 901.30 | 0.00 | 1,280.62 | 164.11 | 164.11 | N/A | N/A | 0.00 | false | N/A |
| J-08A | 901.30 | 1,500.00 | 1,279.89 | 163.80 | 163.80 | N/A | N/A | 1,500.00 | false | N/A |
| J-09 | 899.00 | 0.00 | 1,280.62 | 165.11 | 165.11 | N/A | N/A | 0.00 | false | N/A |
| J-53 | 922.67 | 0.00 | 1,281.65 | 155.31 | 155.31 | N/A | N/A | 0.00 | false | N/A |
| J-54 | 922.34 | 0.00 | 1,281.65 | 155.46 | 155.46 | N/A | N/A | 0.00 | false | N/A |
| J-55 | 922.67 | 0.00 | 1,281.44 | 155.22 | 155.22 | N/A | N/A | 0.00 | false | N/A |
| J-56 | 922.34 | 0.00 | 1,281.42 | 155.35 | 155.35 | N/A | N/A | 0.00 | false | N/A |

Scenario: Ave Day + Fire Flow Fire Flow Analysis Pipe Report

| Label | Length (ft) | Diameter (in) | Material | Upstream Structure Hydraulic Grade (ft) | Discharge (gpm) | Minimum Velocity (ft/s) | Upstream Calculated Pressure (psi) | Downstream Calculated Pressure (psi) | Has Messages? | Maximum Discharge (gpm) | Maximum Velocity (ft/s) |
|-------|-------------|---------------|-----------------|---|-----------------|-------------------------|------------------------------------|--------------------------------------|---------------|-------------------------|-------------------------|
| P-1A | 28.00 | 12.0 | Asbestos Cement | 1,294.31 | -3,690.00 | 10.47 | 123.65 | 12.98 | false | 3,690.00 | 10.47 |
| P-02 | 930.00 | 12.0 | Asbestos Cement | 1,294.31 | 1,554.00 | 4.41 | 123.65 | 128.84 | false | 1,554.00 | 4.41 |
| P-03 | 521.00 | 12.0 | Asbestos Cement | 1,287.78 | 1,554.00 | 4.41 | 128.84 | 142.76 | false | 1,554.00 | 4.41 |
| P-04 | 1,185.00 | 16.0 | Asbestos Cement | 1,283.97 | 1,554.00 | 2.48 | 142.76 | 156.02 | false | 1,554.00 | 2.48 |
| P-05 | 5.00 | 16.0 | Asbestos Cement | 1,282.10 | 1,554.00 | 2.48 | 156.02 | 155.50 | false | 1,554.00 | 2.48 |
| P-06 | 39.00 | 16.0 | Asbestos Cement | 1,281.90 | 1,554.00 | 2.48 | 155.50 | 155.82 | false | 1,554.00 | 2.48 |
| P-06A | 12.00 | 10.0 | PVC | 1,281.65 | 0.00 | 0.00 | 155.82 | 155.31 | false | 0.00 | 0.00 |
| P-06B | 8.00 | 8.0 | Ductile Iron | 1,281.65 | 0.00 | 0.00 | 153.58 | 153.73 | false | 0.00 | 0.00 |
| P-07 | 5.00 | 16.0 | Asbestos Cement | 1,281.65 | 1,554.00 | 2.48 | 155.82 | 155.51 | false | 1,554.00 | 2.48 |
| P-07A | 9.00 | 6.0 | PVC | 1,281.44 | 54.00 | 0.61 | 155.51 | 155.22 | false | 54.00 | 0.61 |
| P-07B | 11.00 | 4.0 | Ductile Iron | 1,281.44 | 54.00 | 1.38 | 153.49 | 153.62 | false | 54.00 | 1.38 |
| P-08 | 487.00 | 16.0 | Asbestos Cement | 1,281.44 | 1,500.00 | 2.39 | 155.51 | 164.11 | false | 1,500.00 | 2.39 |
| P-08A | 6.00 | 6.0 | PVC | 1,280.62 | 1,500.00 | 17.02 | 164.11 | 163.80 | false | 1,500.00 | 17.02 |
| P-09 | 17.00 | 16.0 | Asbestos Cement | 1,280.62 | 0.00 | 0.00 | 164.11 | 165.11 | false | 0.00 | 0.00 |
| P-96 | 1.00 | 10.0 | PVC | 1,281.65 | 0.00 | 0.00 | 155.31 | 153.58 | false | 0.00 | 0.00 |
| P-97 | 1.00 | 10.0 | PVC | 1,281.65 | 0.00 | 0.00 | 153.73 | 155.46 | false | 0.00 | 0.00 |
| P-98 | 459.00 | 10.0 | PVC | 1,281.65 | 0.00 | 0.00 | 155.46 | 165.34 | false | 0.00 | 0.00 |
| P-100 | 1.00 | 6.0 | PVC | 1,281.44 | 54.00 | 0.61 | 155.22 | 153.49 | false | 54.00 | 0.61 |
| P-101 | 1.00 | 6.0 | PVC | 1,281.42 | 54.00 | 0.61 | 153.62 | 155.35 | false | 54.00 | 0.61 |
| P-102 | 455.00 | 6.0 | PVC | 1,281.42 | 54.00 | 0.61 | 155.35 | 169.30 | false | 54.00 | 0.61 |

Scenario: Max Day + Fire Flow Fire Flow Analysis Fire Flow Report

| Label | Fire Flow Iterations | Needed Fire Flow (gpm) | Total Flow Needed (gpm) | Total Flow Available (gpm) | Maximum Hydraulic Grade (ft) | Residual Pressure (psi) | Calculated Residual Pressure (psi) | Calculated Minimum System Pressure (psi) | Fire Flow Upper Limit (gpm) | Fire Flow Balanced? | Satisfies Fire Flow Constraints? | Available Fire Flow (gpm) |
|-------|----------------------|------------------------|-------------------------|----------------------------|------------------------------|-------------------------|------------------------------------|--|-----------------------------|---------------------|----------------------------------|---------------------------|
| J-01 | N/A | 6,000.00 | N/A | N/A | 1,294.29 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-02 | N/A | 6,000.00 | N/A | N/A | 1,287.34 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-03 | N/A | 6,000.00 | N/A | N/A | 1,283.29 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-04 | N/A | 6,000.00 | N/A | N/A | 1,281.30 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-05 | N/A | 6,000.00 | N/A | N/A | 1,281.08 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06 | N/A | 6,000.00 | N/A | N/A | 1,280.81 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06A | N/A | 6,000.00 | N/A | N/A | 1,280.81 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06B | N/A | 6,000.00 | N/A | N/A | 1,280.81 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-06C | 5 | 6,000.00 | 6,000.00 | 6,313.51 | 1,280.81 | 20.00 | 23.07 | 40.00 | 6,500.00 | true | true | 6,313.51 |
| J-07 | N/A | 6,000.00 | N/A | N/A | 1,280.59 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07A | N/A | 6,000.00 | N/A | N/A | 1,280.58 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07B | N/A | 6,000.00 | N/A | N/A | 1,280.49 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-07C | N/A | 6,000.00 | N/A | N/A | 1,280.08 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-08 | N/A | 6,000.00 | N/A | N/A | 1,279.77 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-08A | N/A | 6,000.00 | N/A | N/A | 1,279.04 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-09 | N/A | 6,000.00 | N/A | N/A | 1,279.77 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-53 | N/A | 6,000.00 | N/A | N/A | 1,280.81 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-54 | N/A | 6,000.00 | N/A | N/A | 1,280.81 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-55 | N/A | 6,000.00 | N/A | N/A | 1,280.59 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |
| J-56 | N/A | 6,000.00 | N/A | N/A | 1,280.49 | 20.00 | N/A | N/A | 6,500.00 | false | false | N/A |

Scenario: Max Day + Fire Flow Fire Flow Analysis Junction Report

| Label | Elevation (ft) | Demand (Calculated) (gpm) | Calculated Hydraulic Grade (ft) | Pressure (psi) | Minimum Pressure (psi) | Total Flow Needed (gpm) | Available Fire Flow (gpm) | Maximum Demand (Calculated) (gpm) | Has Calculation Messages? | Total Flow Available (gpm) |
|-------|-------------------|---------------------------------|---------------------------------------|-------------------|------------------------------|----------------------------------|------------------------------------|--|---------------------------------|-------------------------------------|
| J-01 | 1,008.50 | 2,136.00 | 1,294.29 | 123.65 | 123.65 | N/A | N/A | 2,136.00 | false | N/A |
| J-02 | 990.00 | 0.00 | 1,287.34 | 128.65 | 128.65 | N/A | N/A | 0.00 | false | N/A |
| J-03 | 954.00 | 0.00 | 1,283.29 | 142.47 | 142.47 | N/A | N/A | 0.00 | false | N/A |
| J-04 | 921.50 | 0.00 | 1,281.30 | 155.67 | 155.67 | N/A | N/A | 0.00 | false | N/A |
| J-05 | 922.50 | 0.00 | 1,281.08 | 155.14 | 155.14 | N/A | N/A | 0.00 | false | N/A |
| J-06 | 921.50 | 0.00 | 1,280.81 | 155.46 | 155.46 | N/A | N/A | 0.00 | false | N/A |
| J-06A | 926.67 | 0.00 | 1,280.81 | 153.22 | 153.22 | N/A | N/A | 0.00 | false | N/A |
| J-06B | 926.34 | 0.00 | 1,280.81 | 153.36 | 153.36 | N/A | N/A | 0.00 | false | N/A |
| J-06C | 899.50 | 0.00 | 1,280.81 | 164.98 | 164.98 | 6,000.00 | 6,313.51 | 0.00 | false | 6,313.51 |
| J-07 | 922.00 | 0.00 | 1,280.59 | 155.15 | 155.15 | N/A | N/A | 0.00 | false | N/A |
| J-07A | 926.67 | 0.00 | 1,280.58 | 153.12 | 153.12 | N/A | N/A | 0.00 | false | N/A |
| J-07B | 926.34 | 0.00 | 1,280.49 | 153.22 | 153.22 | N/A | N/A | 0.00 | false | N/A |
| J-07C | 890.00 | 107.00 | 1,280.08 | 168.77 | 168.77 | N/A | N/A | 107.00 | false | N/A |
| J-08 | 901.30 | 0.00 | 1,279.77 | 163.74 | 163.74 | N/A | N/A | 0.00 | false | N/A |
| J-08A | 901.30 | 1,500.00 | 1,279.04 | 163.43 | 163.43 | N/A | N/A | 1,500.00 | false | N/A |
| J-09 | 899.00 | 0.00 | 1,279.77 | 164.74 | 164.74 | N/A | N/A | 0.00 | false | N/A |
| J-53 | 922.67 | 0.00 | 1,280.81 | 154.95 | 154.95 | N/A | N/A | 0.00 | false | N/A |
| J-54 | 922.34 | 0.00 | 1,280.81 | 155.09 | 155.09 | N/A | N/A | 0.00 | false | N/A |
| J-55 | 922.67 | 0.00 | 1,280.59 | 154.85 | 154.85 | N/A | N/A | 0.00 | false | N/A |
| J-56 | 922.34 | 0.00 | 1,280.49 | 154.95 | 154.95 | N/A | N/A | 0.00 | false | N/A |

Scenario: Max Day + Fire Flow Fire Flow Analysis Pipe Report

| Label | Length (ft) | Diameter (in) | Material | Upstream Structure Hydraulic Grade (ft) | Discharge (gpm) | Minimum Velocity (ft/s) | Upstream Calculated Pressure (psi) | Downstream Calculated Pressure (psi) | Has Messages? | Maximum Discharge (gpm) | Maximum Velocity (ft/s) |
|-------|----------------|------------------|-----------------|---|--------------------|-------------------------------|---|---|------------------|-------------------------------|-------------------------------|
| P-1A | 28.00 | 12.0 | Asbestos Cement | 1,294.29 | -3,743.00 | 10.62 | 123.65 | 12.98 | false | 3,743.00 | 10.62 |
| P-02 | 930.00 | 12.0 | Asbestos Cement | 1,294.29 | 1,607.00 | 4.56 | 123.65 | 128.65 | false | 1,607.00 | 4.56 |
| P-03 | 521.00 | 12.0 | Asbestos Cement | 1,287.34 | 1,607.00 | 4.56 | 128.65 | 142.47 | false | 1,607.00 | 4.56 |
| P-04 | 1,185.00 | 16.0 | Asbestos Cement | 1,283.29 | 1,607.00 | 2.56 | 142.47 | 155.67 | false | 1,607.00 | 2.56 |
| P-05 | 5.00 | 16.0 | Asbestos Cement | 1,281.30 | 1,607.00 | 2.56 | 155.67 | 155.14 | false | 1,607.00 | 2.56 |
| P-06 | 39.00 | 16.0 | Asbestos Cement | 1,281.08 | 1,607.00 | 2.56 | 155.14 | 155.46 | false | 1,607.00 | 2.56 |
| P-06A | 12.00 | 10.0 | PVC | 1,280.81 | 0.00 | 0.00 | 155.46 | 154.95 | false | 0.00 | 0.00 |
| P-06B | 8.00 | 8.0 | Ductile Iron | 1,280.81 | 0.00 | 0.00 | 153.22 | 153.36 | false | 0.00 | 0.00 |
| P-07 | 5.00 | 16.0 | Asbestos Cement | 1,280.81 | 1,607.00 | 2.56 | 155.46 | 155.15 | false | 1,607.00 | 2.56 |
| P-07A | 9.00 | 6.0 | PVC | 1,280.59 | 107.00 | 1.21 | 155.15 | 154.85 | false | 107.00 | 1.21 |
| P-07B | 11.00 | 4.0 | Ductile Iron | 1,280.58 | 107.00 | 2.73 | 153.12 | 153.22 | false | 107.00 | 2.73 |
| P-08 | 487.00 | 16.0 | Asbestos Cement | 1,280.59 | 1,500.00 | 2.39 | 155.15 | 163.74 | false | 1,500.00 | 2.39 |
| P-08A | 6.00 | 6.0 | PVC | 1,279.77 | 1,500.00 | 17.02 | 163.74 | 164.43 | false | 1,500.00 | 17.02 |
| P-09 | 17.00 | 16.0 | Asbestos Cement | 1,279.77 | 0.00 | 0.00 | 163.74 | 164.74 | false | 0.00 | 0.00 |
| P-09 | 1.00 | 10.0 | PVC | 1,280.81 | 0.00 | 0.00 | 154.95 | 153.22 | false | 0.00 | 0.00 |
| P-09 | 1.00 | 10.0 | PVC | 1,280.81 | 0.00 | 0.00 | 153.36 | 155.09 | false | 0.00 | 0.00 |
| P-09 | 1.00 | 10.0 | PVC | 1,280.81 | 0.00 | 0.00 | 155.09 | 164.98 | false | 0.00 | 0.00 |
| P-100 | 1.00 | 6.0 | PVC | 1,280.59 | 107.00 | 1.21 | 154.85 | 153.12 | false | 107.00 | 1.21 |
| P-101 | 1.00 | 6.0 | PVC | 1,280.49 | 107.00 | 1.21 | 153.22 | 154.95 | false | 107.00 | 1.21 |
| P-102 | 455.00 | 6.0 | PVC | 1,280.49 | 107.00 | 1.21 | 154.95 | 168.77 | false | 107.00 | 1.21 |

Scenario: Peak Hour Steady State Analysis Junction Report

| Label | Elevation (ft) | Demand (Calculated) (gpm) | Calculated Hydraulic Grade (ft) | Pressure (psi) | Minimum Pressure (psi) | Total Flow Needed (gpm) | Available Fire Flow (gpm) | Maximum Demand (Calculated) (gpm) | Has Calculation Messages? | Total Flow Available (gpm) |
|-------|-------------------|---------------------------------|---------------------------------------|-------------------|------------------------------|----------------------------------|------------------------------------|--|---------------------------------|-------------------------------------|
| J-01 | 1,008.50 | 2,136.00 | 1,294.27 | 123.64 | 123.64 | N/A | N/A | 2,136.00 | false | N/A |
| J-02 | 990.00 | 0.00 | 1,286.88 | 128.45 | 128.45 | N/A | N/A | 0.00 | false | N/A |
| J-03 | 954.00 | 0.00 | 1,282.57 | 142.16 | 142.16 | N/A | N/A | 0.00 | false | N/A |
| J-04 | 921.50 | 0.00 | 1,280.45 | 155.30 | 155.30 | N/A | N/A | 0.00 | false | N/A |
| J-05 | 922.50 | 0.00 | 1,280.22 | 154.77 | 154.77 | N/A | N/A | 0.00 | false | N/A |
| J-06 | 921.50 | 0.00 | 1,279.94 | 155.08 | 155.08 | N/A | N/A | 0.00 | false | N/A |
| J-06A | 926.67 | 0.00 | 1,279.94 | 152.84 | 152.84 | N/A | N/A | 0.00 | false | N/A |
| J-06B | 926.34 | 0.00 | 1,279.94 | 152.98 | 152.98 | N/A | N/A | 0.00 | false | N/A |
| J-06C | 899.50 | 0.00 | 1,279.94 | 164.60 | 164.60 | N/A | N/A | 0.00 | false | N/A |
| J-07 | 922.00 | 0.00 | 1,279.70 | 154.76 | 154.76 | N/A | N/A | 0.00 | false | N/A |
| J-07A | 926.67 | 0.00 | 1,279.68 | 152.73 | 152.73 | N/A | N/A | 0.00 | false | N/A |
| J-07B | 926.34 | 0.00 | 1,279.48 | 152.79 | 152.79 | N/A | N/A | 0.00 | false | N/A |
| J-07C | 890.00 | 161.00 | 1,278.60 | 168.13 | 168.13 | N/A | N/A | 161.00 | false | N/A |
| J-08 | 901.30 | 0.00 | 1,278.88 | 163.36 | 163.36 | N/A | N/A | 0.00 | false | N/A |
| J-08A | 901.30 | 1,500.00 | 1,278.15 | 163.05 | 163.05 | N/A | N/A | 1,500.00 | false | N/A |
| J-09 | 899.00 | 0.00 | 1,278.88 | 164.35 | 164.35 | N/A | N/A | 0.00 | false | N/A |
| J-53 | 922.67 | 0.00 | 1,279.94 | 154.57 | 154.57 | N/A | N/A | 0.00 | false | N/A |
| J-54 | 922.34 | 0.00 | 1,279.94 | 154.71 | 154.71 | N/A | N/A | 0.00 | false | N/A |
| J-55 | 922.67 | 0.00 | 1,279.68 | 154.46 | 154.46 | N/A | N/A | 0.00 | false | N/A |
| J-56 | 922.34 | 0.00 | 1,279.48 | 154.52 | 154.52 | N/A | N/A | 0.00 | false | N/A |

Scenario: Peak Hour Steady State Analysis Pipe Report

| Label | Length (ft) | Diameter (in) | Material | Upstream Structure Hydraulic Grade (ft) | Discharge (gpm) | Minimum Velocity (ft/s) | Upstream Calculated Pressure (psi) | Downstream Calculated Pressure (psi) | Has Messages? | Maximum Discharge (gpm) | Maximum Velocity (ft/s) |
|-------|----------------|------------------|-----------------|---|--------------------|-------------------------------|---|---|------------------|-------------------------------|-------------------------------|
| P-1A | 28.00 | 12.0 | Asbestos Cement | 1,294.27 | -3,797.00 | 10.77 | 123.64 | 12.98 | false | 3,797.00 | 10.77 |
| P-02 | 630.00 | 12.0 | Asbestos Cement | 1,294.27 | 1,661.00 | 4.71 | 123.64 | 128.45 | false | 1,661.00 | 4.71 |
| P-03 | 521.00 | 12.0 | Asbestos Cement | 1,286.88 | 1,661.00 | 4.71 | 128.45 | 142.16 | false | 1,661.00 | 4.71 |
| P-04 | 1,185.00 | 16.0 | Asbestos Cement | 1,282.57 | 1,661.00 | 2.65 | 142.16 | 155.30 | false | 1,661.00 | 2.65 |
| P-05 | 5.00 | 16.0 | Asbestos Cement | 1,280.45 | 1,661.00 | 2.65 | 155.30 | 154.77 | false | 1,661.00 | 2.65 |
| P-06 | 39.00 | 16.0 | Asbestos Cement | 1,280.22 | 1,661.00 | 2.65 | 154.77 | 155.08 | false | 1,661.00 | 2.65 |
| P-06A | 12.00 | 10.0 | PVC | 1,279.94 | 0.00 | 0.00 | 155.08 | 154.57 | false | 0.00 | 0.00 |
| P-06B | 8.00 | 8.0 | Ductile Iron | 1,279.94 | 0.00 | 0.00 | 152.84 | 152.98 | false | 0.00 | 0.00 |
| P-07 | 5.00 | 16.0 | Asbestos Cement | 1,279.94 | 1,661.00 | 2.65 | 155.08 | 154.76 | false | 1,661.00 | 2.65 |
| P-07A | 9.00 | 6.0 | PVC | 1,279.70 | 161.00 | 1.83 | 154.76 | 154.46 | false | 161.00 | 1.83 |
| P-07B | 11.00 | 4.0 | Ductile Iron | 1,279.68 | 161.00 | 4.11 | 152.73 | 152.79 | false | 161.00 | 4.11 |
| P-08 | 487.00 | 16.0 | Asbestos Cement | 1,279.70 | 1,500.00 | 2.39 | 154.76 | 163.36 | false | 1,500.00 | 2.39 |
| P-08A | 6.00 | 6.0 | PVC | 1,278.88 | 1,500.00 | 17.02 | 163.36 | 163.05 | false | 1,500.00 | 17.02 |
| P-09 | 17.00 | 16.0 | Asbestos Cement | 1,278.88 | 0.00 | 0.00 | 163.36 | 164.35 | false | 0.00 | 0.00 |
| P-96 | 1.00 | 10.0 | PVC | 1,279.94 | 0.00 | 0.00 | 154.57 | 152.84 | false | 0.00 | 0.00 |
| P-97 | 1.00 | 10.0 | PVC | 1,279.94 | 0.00 | 0.00 | 152.98 | 154.71 | false | 0.00 | 0.00 |
| P-98 | 459.00 | 10.0 | PVC | 1,279.94 | 0.00 | 0.00 | 154.71 | 164.60 | false | 0.00 | 0.00 |
| P-100 | 1.00 | 6.0 | PVC | 1,279.68 | 161.00 | 1.83 | 154.46 | 152.73 | false | 161.00 | 1.83 |
| P-101 | 1.00 | 6.0 | PVC | 1,279.48 | 161.00 | 1.83 | 152.79 | 154.52 | false | 161.00 | 1.83 |
| P-102 | 455.00 | 6.0 | PVC | 1,279.48 | 161.00 | 1.83 | 154.52 | 168.13 | false | 161.00 | 1.83 |

Final Report

*Water, Wastewater, Recycled Water
Feasibility Study*

Prepared for
Jamul Indian Village

and
Analytical Environmental Services
2021 N Street, Suite 200
Sacramento, CA 95814

November 2002



HydraScience Engineers, Inc.

GEORGE MARLES

916-364-1890

- SACRAMENTO -

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FIGURE 1-2
Jamul Indian Village Feasibility Study
Property Boundary

1.0 Introduction

HydroScience Engineers, Inc., (HSE) was retained by Analytical Environmental Services (AES) to complete a preliminary evaluation of the water and wastewater service requirements for four alternative developments proposed for construction by the Jamul Indian Village. This study will be used to support the Environmental Impact Statement (EIS) being prepared by AES for the project. The scope includes a review of background site conditions, an evaluation of the facility requirements, and a preliminary design of key water and wastewater facilities.

This report summarizes HSE's investigation, which began in June 2002, and is organized into the following sections:

- Projected Flows,
- Water Supply,
- Wastewater Treatment,
- Wastewater Disposal, and
- Conclusion.

1.1 Background

The Jamul Indian Village is located in eastern San Diego County approximately one mile south of the community of Jamul. As shown in Figure 1-1, Melody Road borders the project area to the north, vacant and residentially developed land to the west, vacant land to the south, and State Route 94 to the east. State Route 94, a secondary highway of southern California which terminates at the Mexican border town of Tecate, provides direct access both to the Indian Village and to downtown San Diego, approximately 20 miles to the west, where it intersects with Highway 5. From the Indian Village, State Route 94 travels briefly north and then west to downtown San Diego, passing through the communities of Jamul, Casa de Oro, Spring Valley, and Lemon Grove.

The EIS is considering four project alternatives that center around a gaming facility and/or a retail center on the proposed project site. These alternatives consist of food and beverage facilities, banking and administration facilities, gaming commission offices, a conference facility, a childcare and family entertainment center, a event center, retail, and the main gaming hall. Details on each of the alternative designs are summarized in Section 1.2.

The Tribe is also proposing to place approximately 101 acres of the three adjacent parcels, shown in Figure 1-2, into Federal Trust for a future Tribal center and housing, a Tribal government and health center, a fire/sheriff station, gaming facility parking for patrons and employees, human resources building, a wastewater treatment plant (WWTP), treated recycled water urban irrigation areas and conservation areas.

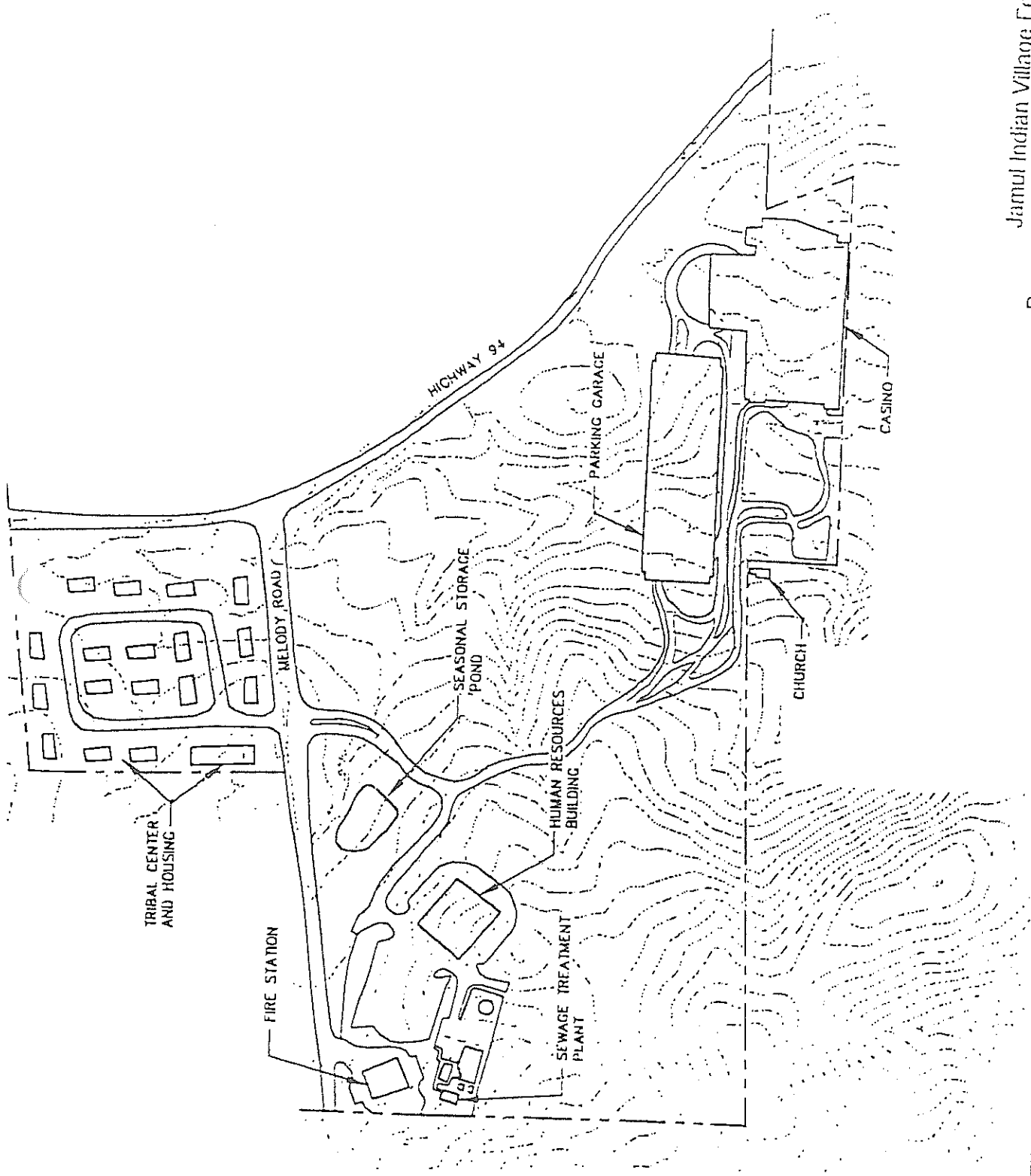


FIGURE 1-3
Jamul Indian Village Feasibility Study
Proposed Site Layout - Alternative A Phase A

NOT TO SCALE

NOT TO SCALE

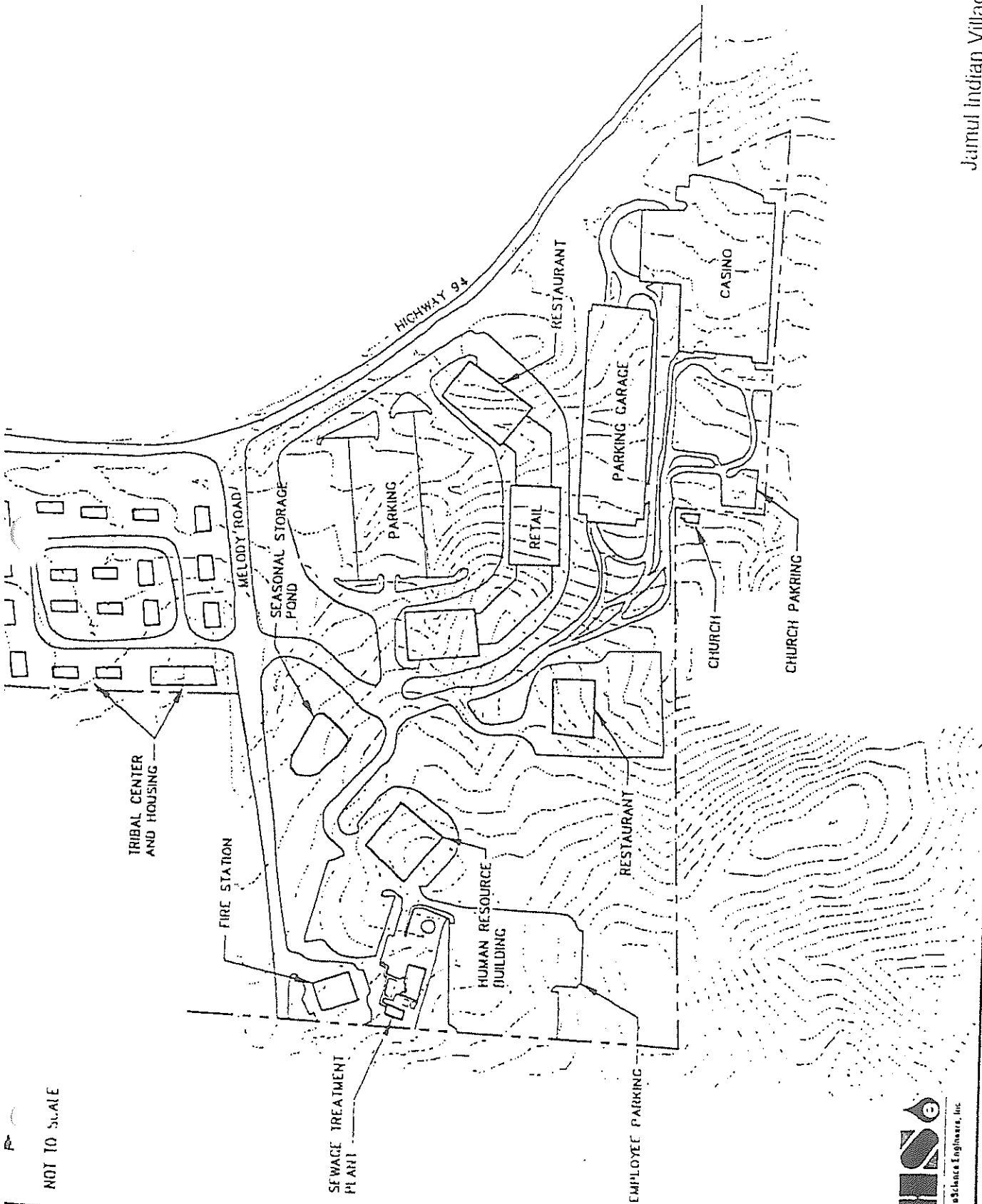


FIGURE 1-5
Jamul Indian Village Feasibility Study
Proposed Site Layout - Alternative B

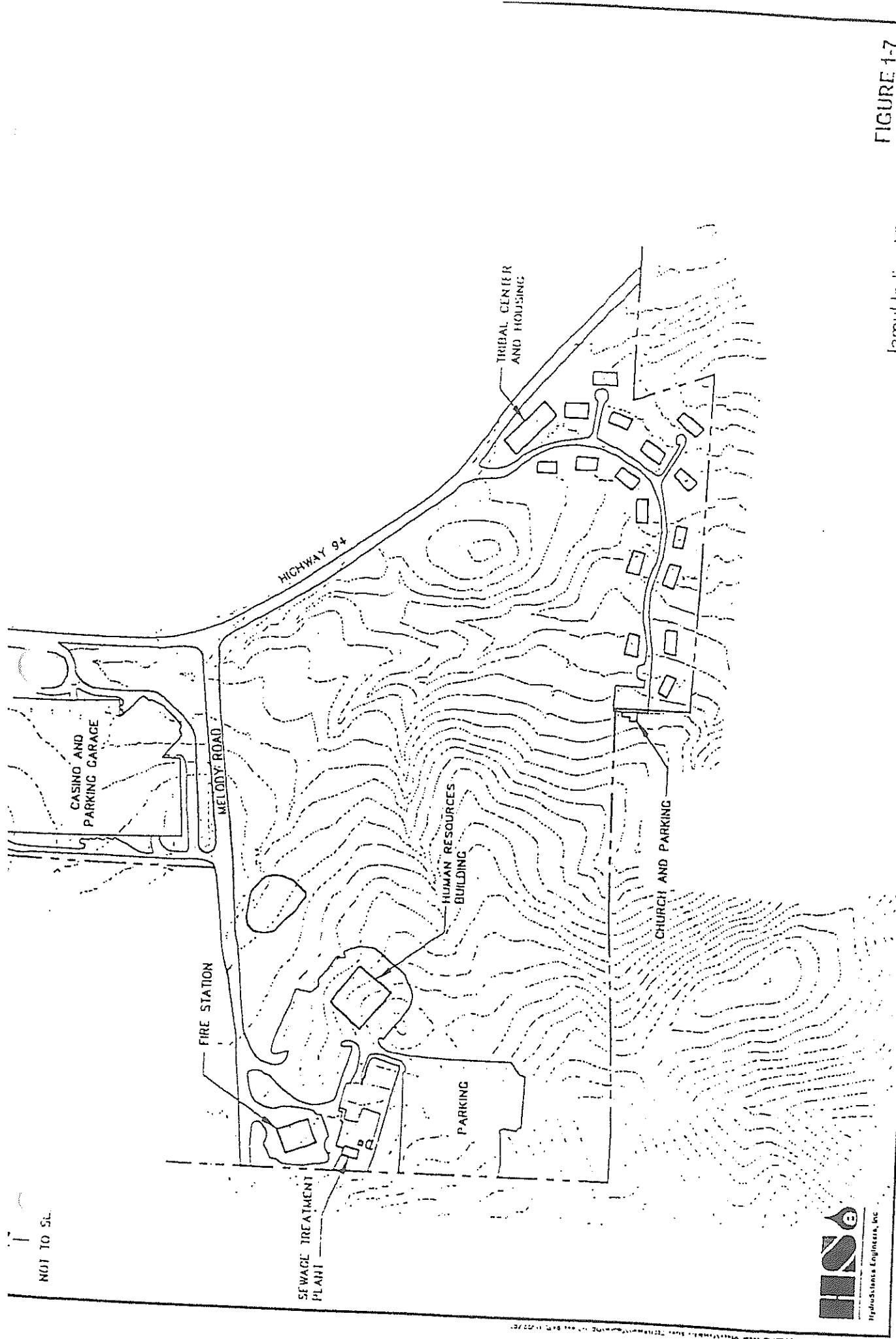


FIGURE 1-7
Jamul Indian Village Feasibility Study
Proposed Site Layout - Alternative D

-
- Estimate wastewater flows,
 - Evaluate the impact of recycled water use on water demand,
 - Develop preliminary sizing of key wastewater collection and treatment facilities, and
Develop a wastewater disposal strategy.

TABLE 2-1

Estimated Average Wastewater Production (gpd) without Reclamation for the Jamul Indian Village

| Facility | Alt. A | | Alt. B | Alt. C | Alt. D |
|-------------------------------------|----------------|----------------|----------------|---------------|----------------|
| | Phase A | Phase B | | | |
| Casino | 123,000 | 123,000 | 123,000 | - | 119,980 |
| Casino restaurant | 32,385 | 32,385 | 32,385 | - | 32,385 |
| Human resources building | 720 | 720 | 720 | - | 720 |
| Hotel ^a | - | 28,320 | - | - | 18,780 |
| Events center | - | 12,750 | - | - | 12,250 |
| Retail ^b | - | - | 4,123 | 15,312 | - |
| Restaurant | - | - | 22,650 | 13,670 | - |
| Residential homes | 8,600 | 8,600 | 8,600 | 8,600 | 8,600 |
| Fire station and sheriff dept. | 1,500 | 1,500 | 1,500 | 1,500 | 1,500 |
| Tribal government and health center | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| Total | 169,205 | 210,275 | 195,978 | 42,082 | 197,215 |

Assumes 100 gpd/guest, 2 guests/room, 90% occupancy.

Assumes 1 gpd/parking space, 2 passengers/vehicle.

2

Design Wastewater Flows (gpd) without Reclamation for the Jamul Indian Village^a

| Flow condition | Alt. A | | Alt. B | Alt. C | Alt. D |
|----------------------------|---------|---------|---------|--------|---------|
| | Phase A | Phase B | | | |
| Average day flow | 170,000 | 211,000 | 196,000 | 43,000 | 198,000 |
| Peak day flow ^b | 339,000 | 421,000 | 392,000 | 85,000 | 395,000 |

Rounded up to the nearest 1,000 gpd.

Peaking factor of 2.0 applied.

2 Water Demand

This section estimates the water demand for the various project alternatives and details the design criteria used to develop these projections.

2.1 Design Criteria

Estimates of water demand from new facilities are typically based on the wastewater flow produced by the projected occupants. Since metered water demand data are not always available, wastewater flows, which are typically metered, are used to estimate the water demand.

TABLE 2-4

Design Water Demand (gpm) without Reclamation for the Jamul Indian Village

| Flow condition | Alt. A | | Alt. B | Alt. C | Alt. D |
|--|---------|---------|--------|--------|--------|
| | Phase A | Phase B | | | |
| Average day demand ^a | 124 | 154 | 143 | 31 | 144 |
| Maximum day demand ^b | 247 | 307 | 287 | 62 | 288 |
| Peak hour demand ^c | 371 | 461 | 430 | 92 | 432 |
| Landscape irrigation ^d | 49 | 60 | 64 | 58 | 45 |
| Recommended water supply capacity ^e | 420 | 521 | 494 | 150 | 477 |

^a Estimated from anticipated wastewater flow plus allowances for system losses.^b Maximum day peaking factor of 2.0 applied.^c Peak hour peaking factor of 3.0 applied.^d Irrigation demand estimated based on crop uptake rates and landscaped area summarized later in Section 5.1.5.^e Sum of the peak hour demand and landscape irrigation.

2.3 Recycled Water

Recycled water in this report means wastewater that has been treated sufficiently to meet the California Department of Health Services' (DHS) comprehensive recycled water regulations that define treatment processes, water quality criteria, and treatment reliability requirements for public use of recycled water. These regulations are contained in Title 22, Division 4, Chapter 3 of the California Administrative Code, more commonly referred to as Title 22.

Approved by the State in December 2000, Title 22 prescribes recycled water criteria and divides them into several categories based upon the extent of public access or risk of exposure. In general, Title 22 regulations are more stringent for uses with high potential for public contact and less stringent for uses with low potential for public contact. Depending on the use, Title 22 establishes four levels of treatment required for recycled water: undisinfected secondary, undisinfected secondary-23, undisinfected secondary-2.2, and disinfected tertiary.

Undisinfected Secondary Recycled Water. This category of recycled water is wastewater that has been treated to a secondary treatment level and is commonly referred to as secondary effluent. Secondary effluent is wastewater that contains dissolved oxygen (DO) and has undergone an oxidation process in which the organic matter content of the water has been stabilized and made nonputrescible.

Disinfected Secondary-23 Recycled Water. This category of recycled water is secondary effluent that has been disinfected to a level such that the most probable number (MPN) of coliform bacteria in the water does not exceed 23 per 100 mL. Disinfection is the process whereby pathogenic bacteria and viruses are inactivated by chemical, physical, or biological means.

Disinfected Secondary-2.2 Recycled Water. This category of recycled water includes secondary effluent that has been disinfected to a level such that the coliform bacteria in the water does not exceed 2.2 MPN per 100 mL.

TABLE 2-5
Surface Uses of Recycled Water

| Use of recycled water: | Treatment level | | |
|--|----------------------|-------------------|------------------|
| | Tertiary | Secondary -2.2 | Secondary -23 |
| Irrigation of: | | | |
| Food crops—contact with edible portion of crop | Allowed | Not Allowed | Not Allowed |
| Parks and playgrounds | Allowed | Not Allowed | Not Allowed |
| School yards | Allowed | Not Allowed | Not Allowed |
| Residential landscaping | Allowed | Not Allowed | Not Allowed |
| Unrestricted access golf courses | Allowed | Not Allowed | Not Allowed |
| Any other irrigation uses not prohibited by other provisions of CCR | Allowed | Not Allowed | Not Allowed |
| Food crops—edible portion above ground/not in contact with reclaimed water | Allowed | Allowed | Not Allowed |
| Cemeteries | Allowed | Allowed | Allowed |
| Freeway landscaping | Allowed | Allowed | Allowed |
| Restricted-access golf courses | Allowed | Allowed | Allowed |
| Ornamental nursery stock and sod farms | Allowed | Allowed | Allowed |
| Pasture for milk animals | Allowed | Allowed | Allowed |
| Any nonedible vegetation with access control to prevent use, as if it were a park, playground, or schoolyard | Allowed | Allowed | Allowed |
| Orchards with no contact between edible portion and reclaimed water | Allowed | Allowed | Allowed |
| Vineyards with no contact between edible portion and reclaimed water | Allowed | Allowed | Allowed |
| Non-food bearing trees not irrigated <14 days of harvest | Allowed | Allowed | Allowed |
| Forage crops (e.g., alfalfa) and fiber crops (e.g., cotton) | Allowed | Allowed | Allowed |
| Seed crops not eaten by humans | Allowed | Allowed | Allowed |
| Food crops that undergo commercial pathogen-destroying processing before human consumption (e.g., sugar beets) | Allowed | Allowed | Allowed |
| Food crops—contact with edible portion of crop | Allowed | Not Allowed | Not Allowed |
| Apply for impoundments: | | | |
| Unrestricted rec. impound., with supplemental monitoring for pathogenic organisms | Allowed ² | Not Allowed | Not Allowed |
| Restricted impoundment and fish hatcheries | Allowed | Allowed | Not Allowed |
| Landscaped impoundment. Without decorative fountains | Allowed | Allowed | Allowed |

2.3.1 Design Criteria

Recycled water would be used for toilet flushing and landscape irrigation to the maximum extent possible for all four alternatives. For the toilet flushing, this means dual-plumbing of all facilities with the exception of the residential services. Tribal government and health center. For landscape irrigation, this means using recycled water for irrigating streetscape, street medians, and general landscape architectural fixtures for the various alternatives. Water uses with the potential for direct human contact, such as food preparation, should remain on potable water service.

To estimate the extent of the potable water applications that could be substituted with recycled water, average water usage for each facility was broken down according to the possible applications. These applications and usage breakdowns are summarized in Table 2-6. The net reduction in potable water use was then estimated and used to evaluate the impact that recycled water use could have on water demand and, consequently, on wastewater disposal.

TABLE 2-6
Breakdown in Typical Water Uses at Varying Facilities

| Facility | Toilet flushing ^a | Bathing | Cooking, drinking | Laundry, dishes | Misc. ^b | Net water demand reduction due to dual-plumbing |
|-------------------------------------|------------------------------|------------------|-------------------|------------------|--------------------|---|
| Casino | 80% ^c | - | 20% | - | - | 80% |
| Casino restaurant | 30% | - | 50% | 20% | - | 30% |
| Human resources building | 80% ^c | - | 20% | - | - | 80% |
| | 30% | 50% | 5% | 15% | - | 30% |
| Recreation center | 80% ^c | - | 20% | - | - | 80% |
| Retail | 80% ^c | - | 20% | - | - | 80% |
| Restaurant | 30% | - | 50% | 20% | - | 30% |
| Residential homes | 41% ^d | 34% ^d | 4% ^d | 21% ^d | - | 41% ^e |
| Police station and sheriff dept. | 40% | 30% | 10% | 15% | 5% | 40% |
| Tribal government and health center | 45% | 40% | 10% | 5% | - | 45% ^e |

^aCan be converted to recycled water service.

^bIncludes car wash, fire training, and other general uses.

^cSource: Irvine Ranch Water District.

^dAnderson and Thurow, n.d.

^eAlthough dual-plumbing is possible, irrigation at these facilities are not planned for recycled water service.

3.2 Water and Wastewater Flows with Reclamation

Revised water demand estimates for the various alternatives are summarized in Table 2-7. Revised design water demand for determining water supply requirements and for sizing water distribution facilities are summarized in Table 2-8. These estimates are made assuming that recycled water is used in lieu of potable water for the uses outlined previously in Table 2-6.

TABLE 2-9

Estimated Average Wastewater Disposal Requirements (gpd) with Reclamation for the Jamul Indian Village

| Facility | Alt. A | | | | |
|-------------------------------------|---------|---------|--------|--------|--------|
| | Phase A | Phase B | Alt. B | Alt. C | Alt. D |
| Casino | 19,421 | 19,421 | 19,421 | - | 19,944 |
| Casino restaurant | 21,692 | 21,692 | 21,692 | - | 21,692 |
| Human resources building | 114 | 114 | 114 | - | 114 |
| Hotel | - | 18,682 | - | - | 12,155 |
| Event center | - | 2,013 | - | - | 1,934 |
| Retail | - | - | 651 | 2,418 | - |
| Restaurant | - | - | 14,629 | 8,737 | - |
| Residential homes | 8,600 | 8,600 | 8,600 | 8,600 | 8,600 |
| Fire station and sheriff dept. | 868 | 868 | 868 | 868 | 868 |
| Tribal government and health center | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| Vet | 53,696 | 74,391 | 68,975 | 23,623 | 67,308 |

TABLE 3-1
Water Quality Data for the Otay Water District

| Parameters | Units | State MCL | MCL goal | Helix R.M. Levy WTP | | MYWD Combined Skinner WTPs | |
|---|---------|-----------|----------|--|---------|----------------------------|---------|
| | | | | Range | Average | Range | Average |
| Primary drinking water standards ¹ | | | | | | | |
| Effluent turbidity | NTU | TT | NS | Highest Single measurement | 0.13 | | 0.15 |
| | | | | Lowest month / percentage of samples meeting MCL | 100% | | 100% |
| Total coliform | | 5.0% | | Range Combined Distribution System: 0-1.7% Average Combined Distribution System = 0.13% | | | |
| Fecal coliform and E.coli | | ND | C | % of fecal coliform samples that were positive = 0 % of E.coli samples that were positive = 0 | | | |
| THM ² | ppb | 100 | NA | Range of all distribution sample points: 22-112 Highest running annual average = 42 | | | |
| Aluminum | ppm | 1 | NA | ND-0.125 | ND | ND-0.102 | ND |
| Arsenic | ppb | 50 | NA | 2.0-3.0 | 2.5 | ND | ND |
| Fluoride | ppm | 2 | NA | 0.21-0.27 | 0.24 | 0.20-0.25 | 0.22 |
| Nitrate (as N) | ppm | 10 | NA | ND | ND | ND-0.45 | ND |
| Gross alpha particle | pCi/L | 15 | NA | ND-6.4 | 4.7 | ND-5.53 | 3.99 |
| Gross beta particle | pCi/L | 50 | NA | ND-3.7 | 2.5 | ND-7.48 | 5.24 |
| Committed radium | pCi/L | 5 | NA | <5 | <5 | ND-2.36 | 1.25 |
| Uranium-90 | pCi/L | 8 | NA | ND-3.6 | 0.9 | ND | ND |
| Lithium | pCi/L | 20,000 | NA | ND-400 | 184 | ND | ND |
| Barium | pCi/L | 20 | NA | 2.7-3.7 | 3.1 | ND-3.18 | 2.61 |
| Secondary drinking water standards ¹ | | | | | | | |
| Aluminum | ppb | 200 | NA | ND-125 | ND | ND-102 | ND |
| Fluoride | ppm | 500 | NA | 64-81 | 74 | 68-80 | 72 |
| Chlorine | Units | 15 | NA | 1-5 | 2.5 | 1 | 1 |
| THM d | ppb | 500 | NA | ND-51 | 26 | ND | ND |
| Hardness | ppm | NA | NA | 216-237 | 227 | 221-240 | 230 |
| Color threshold | Units | 3 | NA | NA | NA | NA | NA |
| Iron | ppm | NA | NA | 35-78 | 59 | 64-73 | 67 |
| Specific conductance | µmho/cm | 1,600 | NA | 761-820 | 776 | 759-827 | 786 |
| Lead | ppm | 500 | NA | 147-183 | 170 | 160-176 | 169 |
| Copper | ppm | 1,000 | NA | 460-490 | 475 | 452-491 | 467 |

Excerpted from the Otay Water District Consumer Confidence Report

¹Excerpted from the Otay Water District Consumer Confidence Report, included as Appendix A.

²Mandatory health-related standards.
Total trihalomethane,
and disinfection by-products agents.

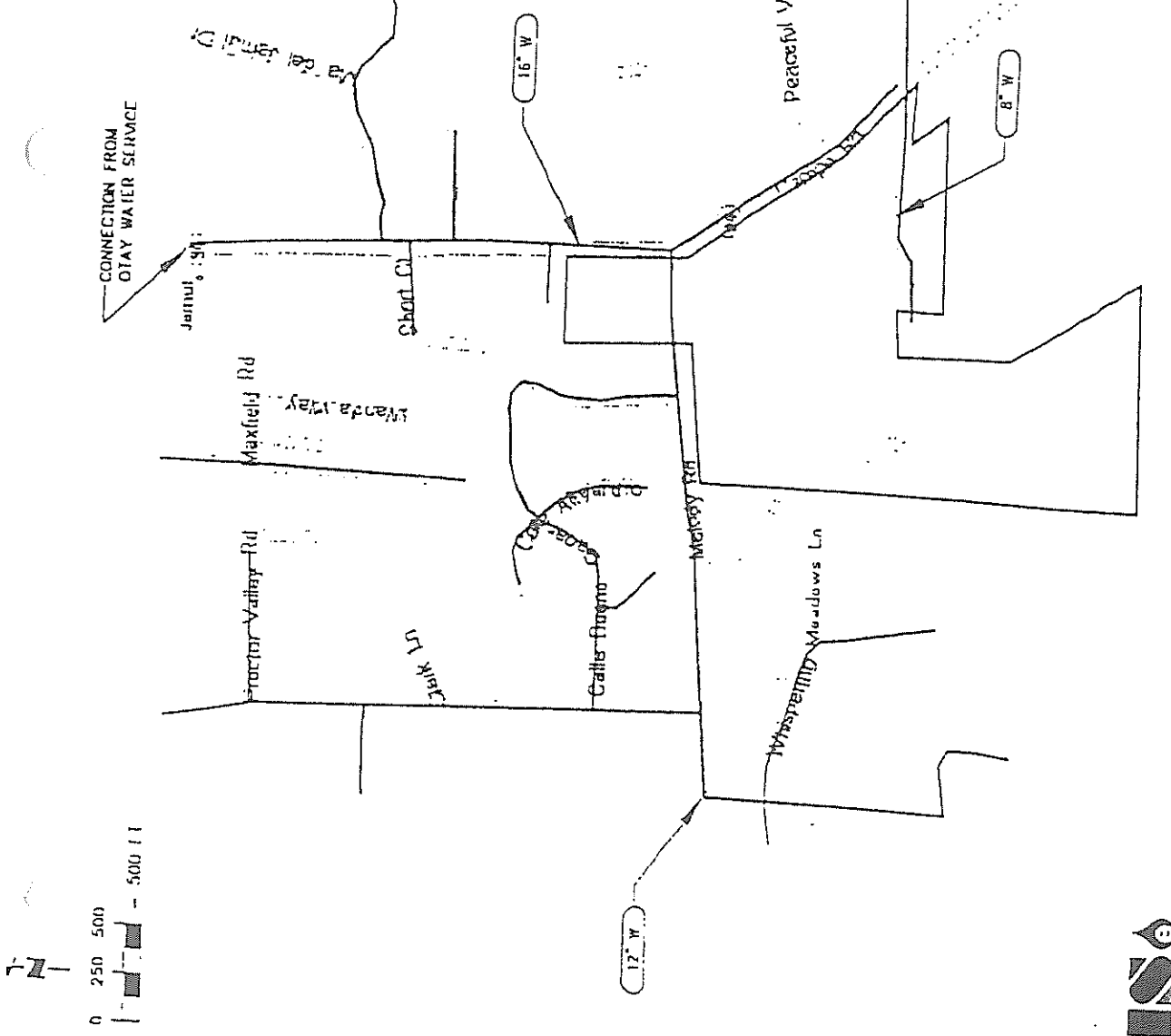
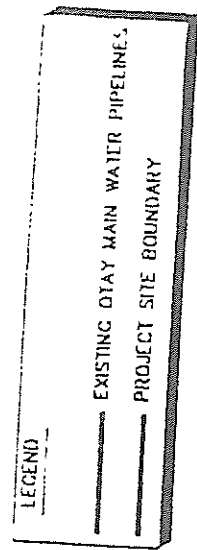


FIGURE 3-1
Jamul Indian Village Feasibility Study
Existing On-Site Water Service by Otay Water District



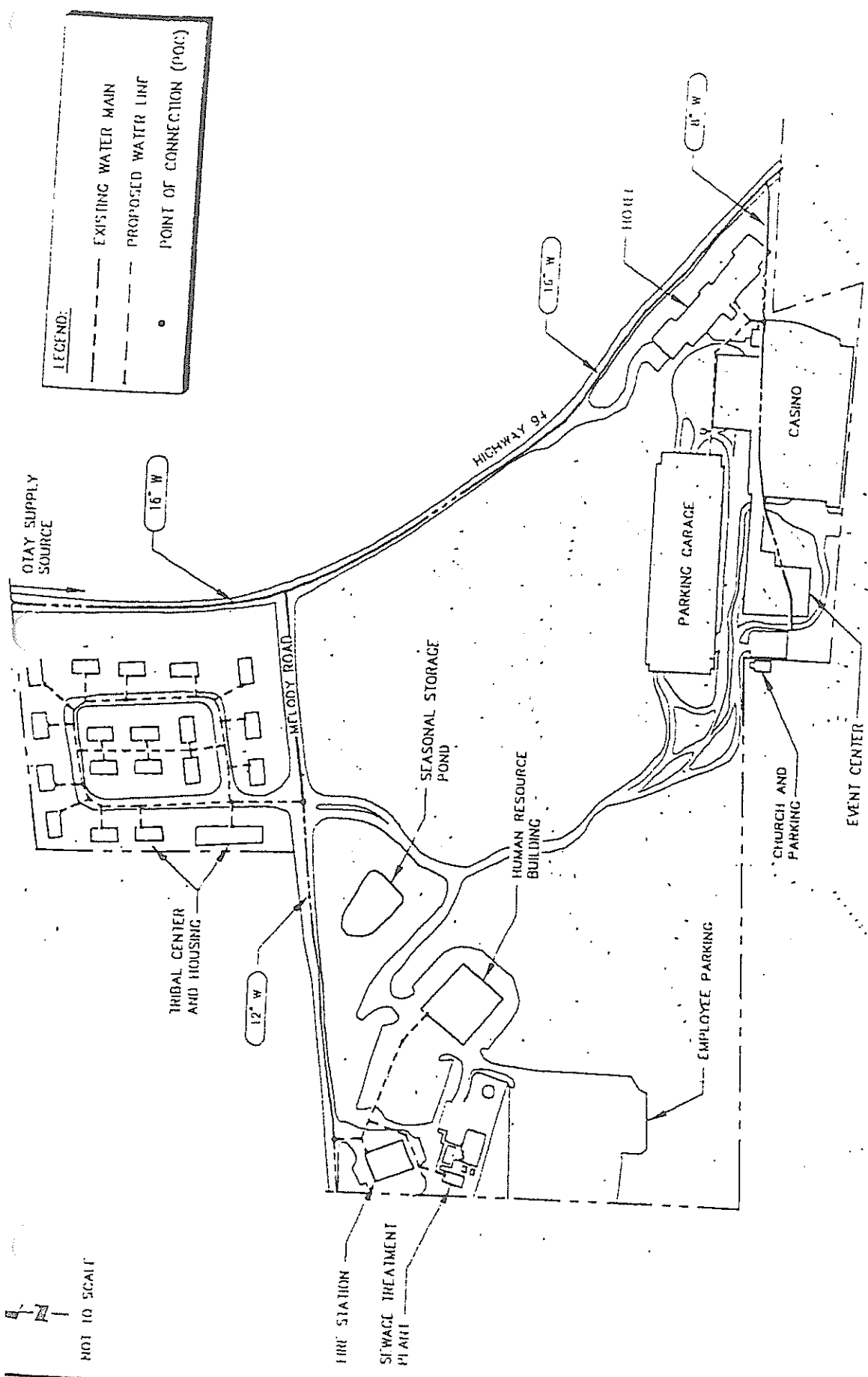


FIGURE 3-2
Jamul Indian Village Feasibility Study
Conceptual Water Service for Alternative A Phase B

5' = 1"

NOT TO SCALE

LEGEND:

- EXISTING WATER MAIN
- - - PROPOSED WATER LINE
- POINT OF CONNECTION (POC)

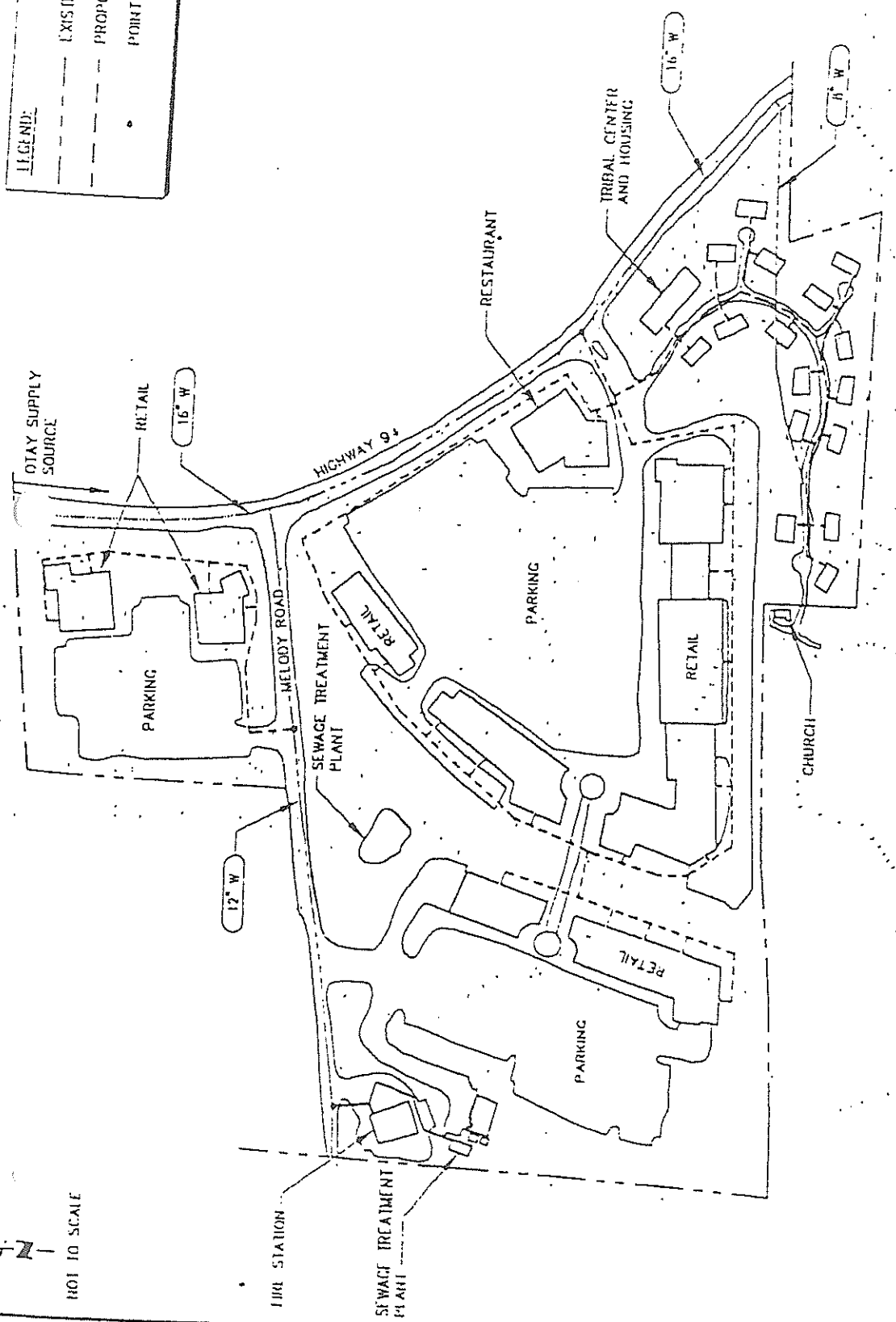


FIGURE 3-4
Jamul Indian Village Feasibility Study
Conceptual Water System for Alternative C

NOT TO SCALE

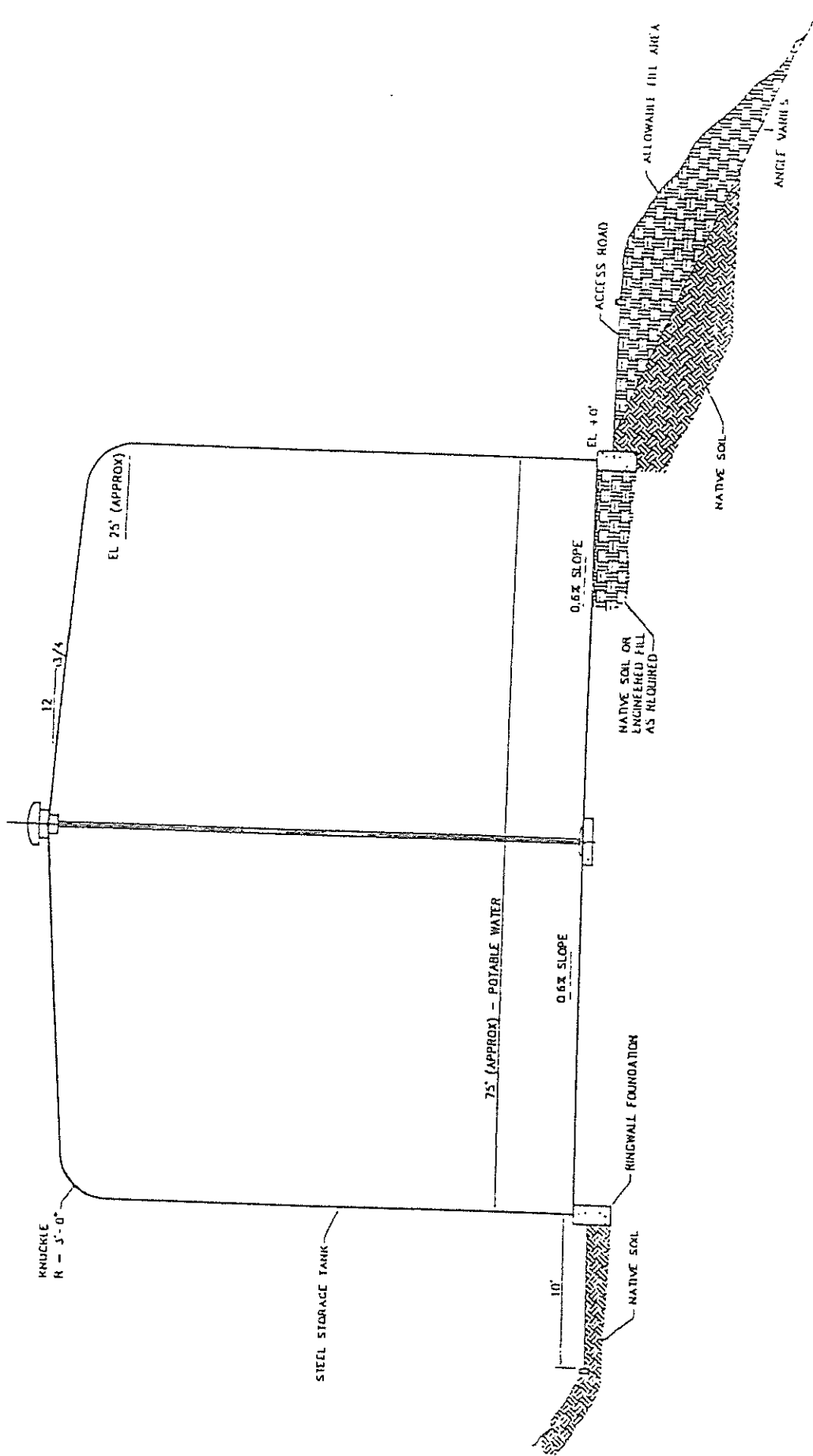


FIGURE 3-6
Jamul Indian Village Feasibility Study
Typical Water Storage Tank

4.0 Wastewater Treatment

This section summarizes on-site facilities for wastewater collection, treatment, and disposal. An earlier study (HydroScience Engineers, 2001) evaluated the facility requirements for this project. This investigation determined that, due to the proximity of the closest WWTP, it would be more advantageous for the Tribe to develop on-site treatment and disposal capabilities to service the proposed facility. As a result, further evaluation of the proposed project's wastewater requirements focuses on developing on-site treatment and disposal. This WWTP would be designed solely to handle wastewater produced from the project site. It is not intended to service additional flows beyond the project's property boundary.

4.1 Regulatory Requirements

Wastewater treatment plants in California typically require a National Pollution Discharge Elimination System (NPDES) permit for surface discharge or a Waste Discharge Requirements (WDR) permit for discharge over land. Ordinarily, these permits are issued by the State of California Regional Water Quality Control Board (RWQCB). However, since the proposed facilities are located on tribal lands held in federal trust, they are subject to regulation by the federal government, specifically by the U.S. Environmental Protection Agency (USEPA). Permitting for any tribal WWTP that discharges on tribal land would be through the USEPA, through the RWQCB. In general, USEPA requires the same discharge standards as the local governing RWQCB.

4.1.1 Subsurface Disposal

Subsurface disposal permitting would likely be based on groundwater quality degradation criteria under recent USEPA guidelines. Under this permitting strategy, it would be necessary to perform a hydrogeological study to establish pollutant transport patterns in the nearest identifiable groundwater basin. An analysis would be required to determine the down-gradient environmental impacts to the beneficial users of the groundwater and the permit would likely contain mass-based discharge limitations.

Typical discharge prohibitions include:

- Discharge of wastes to surface waters or surface water drainage courses,
- Discharge of wastes to areas other than the designated treatment and disposal areas, and
- Bypass or overflow of untreated or partially treated waste.

Typical discharge specifications include:

- Objectionable odors originating from the WWTP shall not be perceivable beyond the boundary of the WWTP and disposal areas.
- Wastewater discharged to leachlines shall remain underground at all times.
- The distance between any unlined pond or leaching trench bottoms and the anticipated deepest groundwater shall be greater than 6 inches, or such distance as necessary to provide compliance with local groundwater limitations.

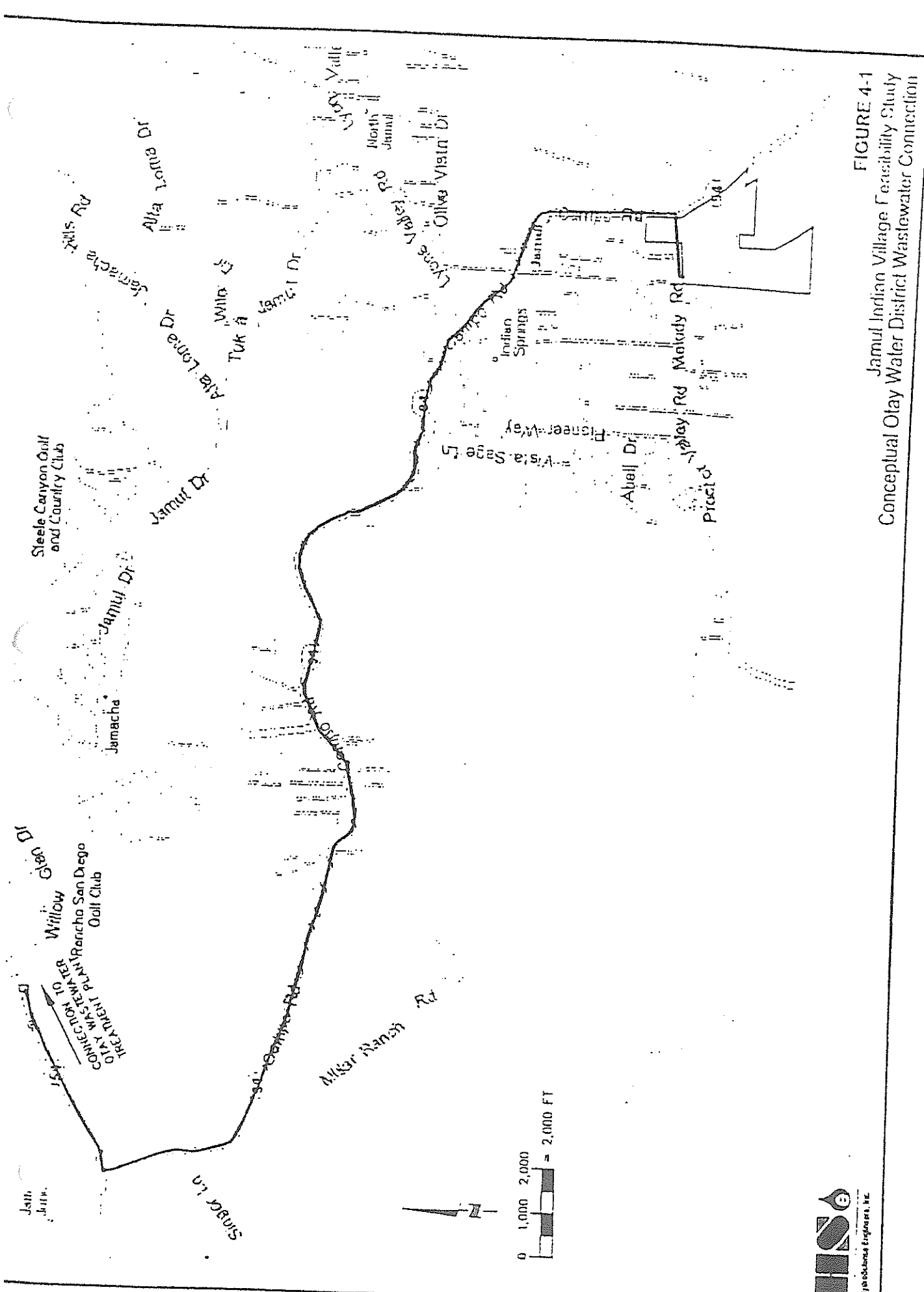
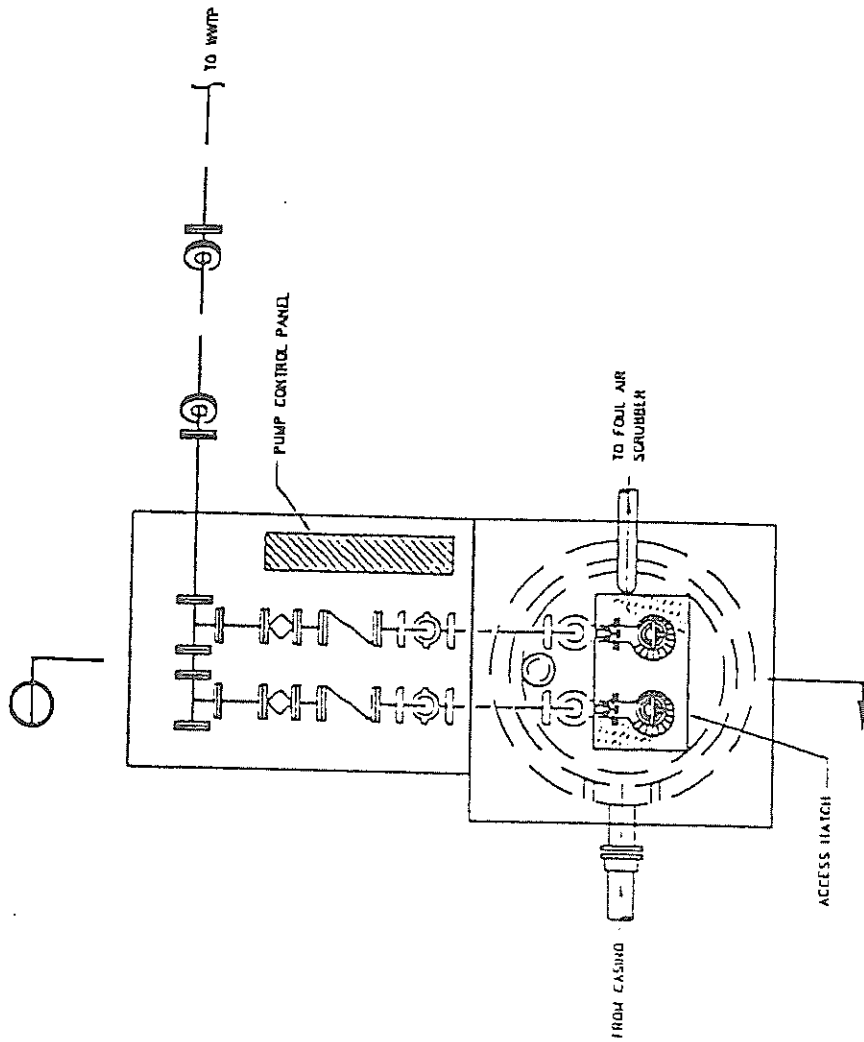
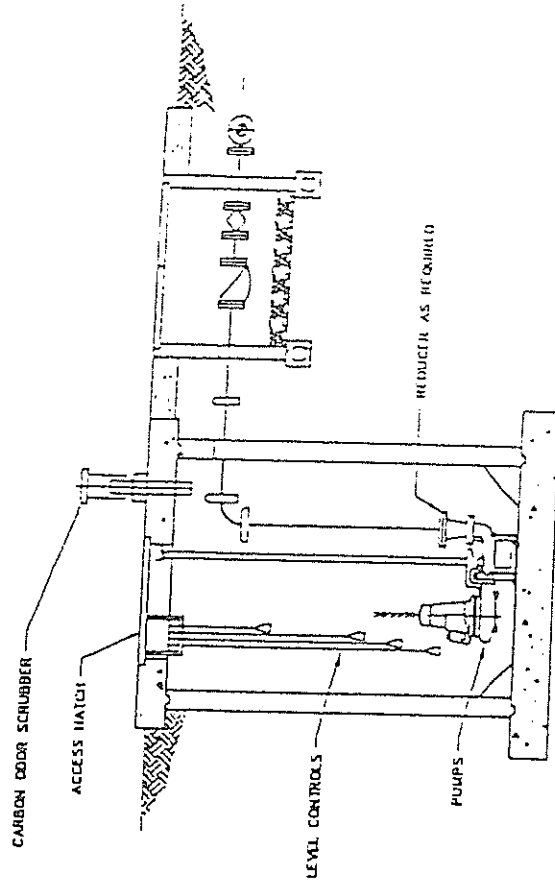


FIGURE 4-1
Jamul Indian Village Feasibility Study
Conceptual Olay Water District Wastewater Connection



LIFT STATION PLAN
NOT TO SCALE



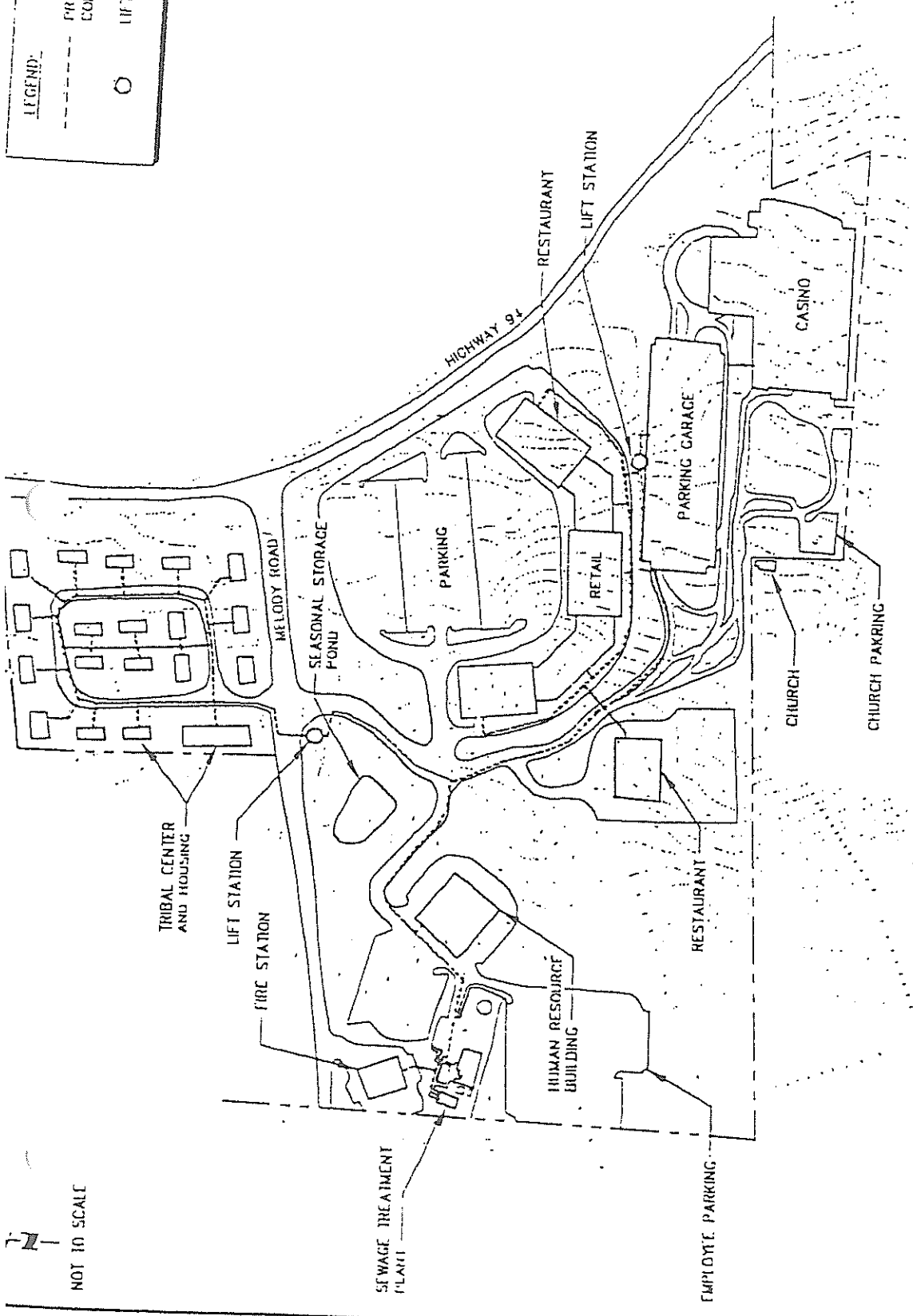
SECTION
NOT TO SCALE

FIGURE 4-2
Jamul Indian Village Feasibility Study
Typical Sewer Lift Station

LEGEND:

PROPOSED WASTEWATER COLLECTION LINE

LIFT STATION



NOT TO SCALE

FIGURE 4-4
Jamul Indian Village Feasibility Study
Conceptual Collection System for Alternative B

LEGEND:

--- PROPOSED WASTE WATER COLLECTION LINE

○ LIFT STATION

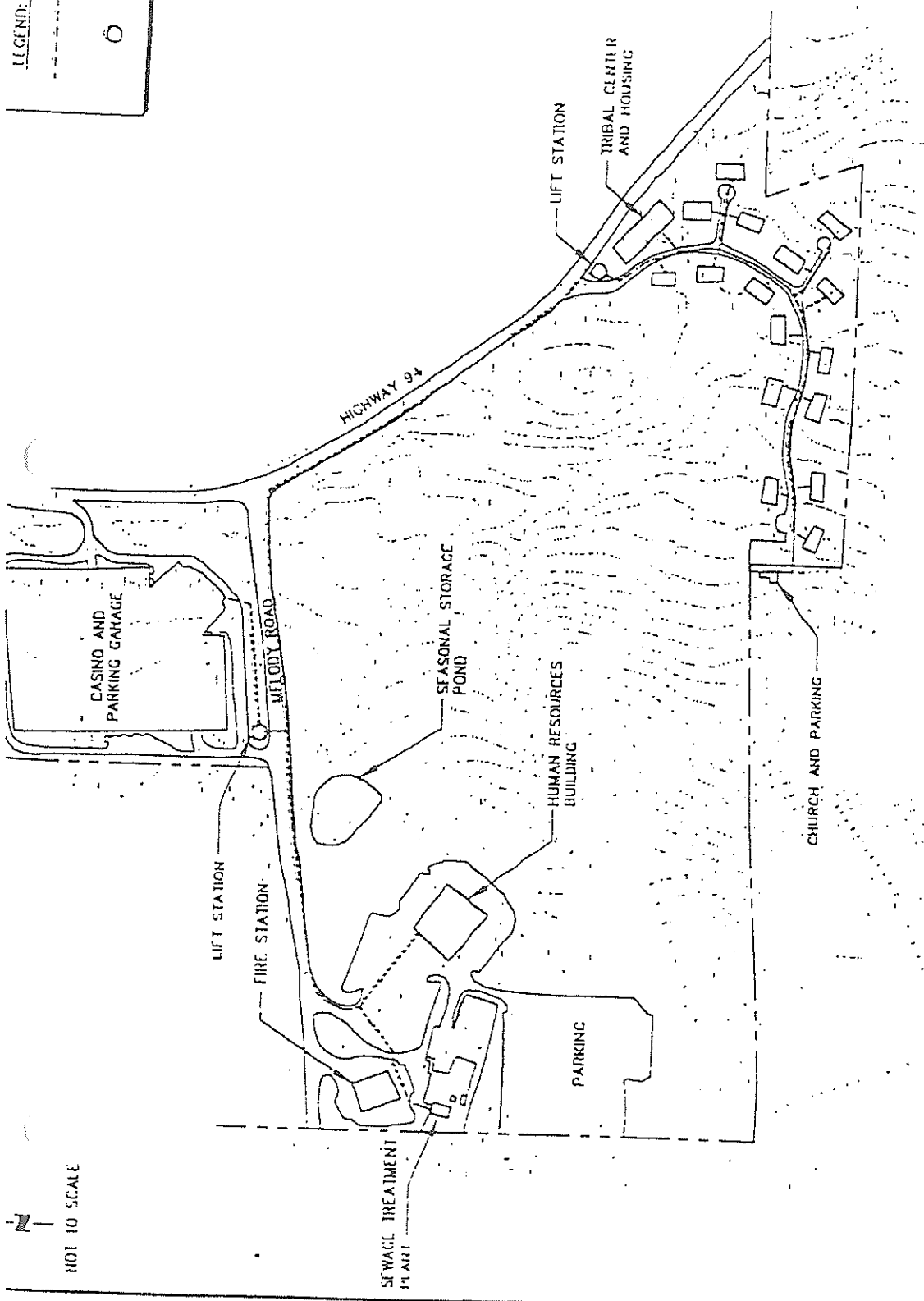


FIGURE 4-6
Jamul Indian Village Feasibility Study
Conceptual Collection System for Alternative D

microorganism concentrations not previously possible with activated sludge due to the resulting settling problems caused by excessive solids loading to the clarifier.

MBRs systems are comprised of many unit processes, which together achieve treatment of raw wastewater to produce a high-quality effluent ideal for reclamation use. A conceptual process flow diagram showing the major unit processes for the proposed WWTP is illustrated in Figure 4-7. Treatment begins upstream of the MBR at the headworks, which uses fine screens to remove large materials that can potentially damage the membrane. Wastewater flows from the headworks by gravity into the MBR structure.

The MBR process combines oxidation, clarification, and filtration into one step. A bioreactor with separate anoxic and aerobic cells provides the environment necessary for BOD₅ oxidation, nitrification, and denitrification processes to occur. High concentrations of mixed liquor suspended solids (MLSS), up to 15,000 mg/L, are maintained in the MBR tank allowing rapid synthesis of the soluble organics in the wastewater. Nitrogen removal through nitrification and denitrification is also achieved in the MBR tank.

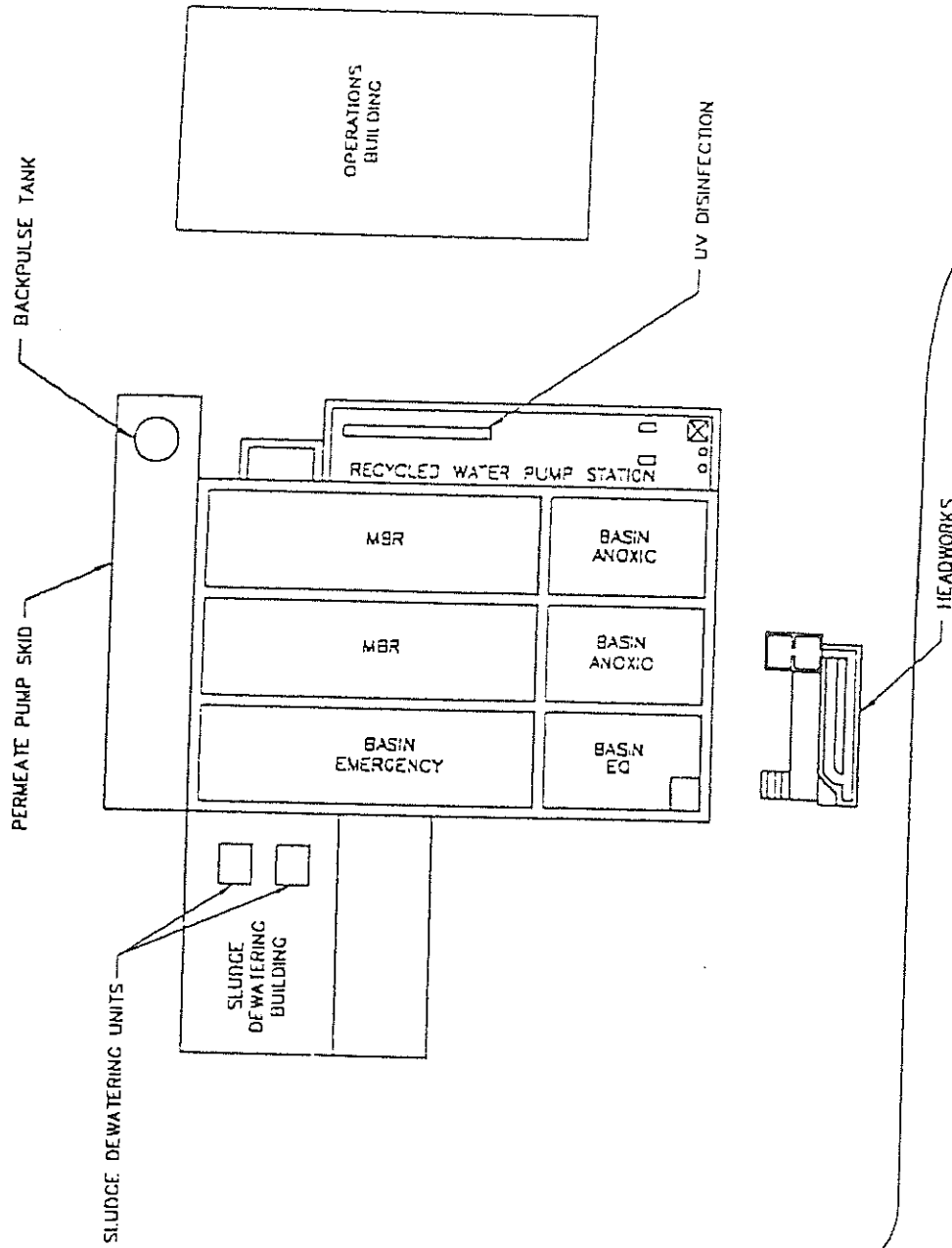
Membrane modules immersed in the aerobic portion of the process tank combine the functions of the clarifier and tertiary filtration processes into a single step. The membranes are classified as MF and have microscopic pores that strain solids larger than 0.1 μm to produce effluent with a very low solids concentration. Having completed filtration, the membrane effluent (called permeate) is disinfected.

Depending on the disposal point, the permeate is disinfected with either ultraviolet light (UV) or NaOCl . For disposal to the subsurface leachfield or sprayfield, UV is preferred since very low disinfectant concentration minimizes shielding of bacteria, thereby producing a high pathogenic kill. As a result, UV disinfection provides efficient and consistent microbial inactivation without increased risk of chemical DBP formation. For disposal by reclamation, chlorination is preferred over UV since reclaimed water distribution design typically endeavors to maintain a chlorine residual in the distribution system to prevent regrowth.

Waste sludge and solids residual would be disposed of by mechanical dewatering. Waste activated sludge (WAS) and biosolids residual produced by the wastewater would be dewatered on site by means of a belt filter press and ultimately hauled off site for disposal. It is recommended that landfills in the region be contacted to determine if the landfills accept biosolids. The frequency of this operation would depend on the solids wasting frequency in the wastewater plant. All biosolids dewatering and storage facilities would be contained indoors and the foul air scrubbed to minimize odors.

A preliminary level design of the recommended MBR WWTP is included in this study. A conceptual site layout is included in Figure 4-8, which shows the WWTP at the western portion of the site. Unit process information and general design criteria are further summarized in Table 2.

FIGURE 4-8
Jamul Indian Village Feasibility Study
MBR WTP Layout



4.4.2 Facility Design

Facility design of the MBR WWTP was completed on a preliminary level. A conceptual site layout is included in Figure 4-8 showing major facility sizes and locations for treating 450,000 gpd average day wastewater. Future additional facilities are also shown to illustrate possible expansion designs. Unit process summaries for major processes are included in Table 4-1. Manufacturer information on the mechanical treatment processes is included in Appendix D for reference.

Although not included in the treatment plant facilities described below, experience at similar facilities shows the necessity of properly sized grease traps for all kitchens to strain wastes from the gaming facility. These traps must be serviced on a regular basis in order to remain effective.

Headworks. Headworks facilities would consist of flow measurement and screening equipment. Typical plan and section drawings are illustrated in Figure 4-9. Wastewater pumped by the raw wastewater lift stations to the headworks would enter the influent pipe, which would be reduced to a 3-inch diameter pipe upstream of a magnetic flow meter. After flow measurement, the pipe would discharge to a covered headworks influent box for distribution to the screening channels. Slide gates would control flow to the screening channels.

Fine screening would be required for protection of the MF membranes. A provided bypass around the screen would act as an emergency overflow in case of mechanical or electrical failure. The headworks screening channel would be sized to handle the peak wastewater flows for each alternative.

Screening would be accomplished by a self-cleaning inclined cylindrical sieve screen with an integral screenings scraper/conveyor, compactor, and mechanical washer system. A 3-mm screen size would be required to protect the MF membranes from hair and stringy material. The cylindrical screen fits into the channel at one end. As the water level rises in the influent channel, a shaftless helical screw pushes the solids down into the channel where a mechanical washer system breaks up fecal material so that it can pass through the screen to the treatment plant. Then the screw reverses directions in order to pull the remaining inorganic solids upwards to a compactor. Compacted screenings fall into a bin via a discharge chute. Excess liquid from the compactor flows back to the channel.

The headworks channel and screen system would be covered. Foul air from the headworks facilities would be scrubbed for odor removal, which would be accomplished in a soil filter. This eliminates the need for chemicals and simplifies operational requirements typical for a chemical scrubbing system.

Immersed Microfiltration Membrane Bioreactor. The MBR system combines a suspended growth biological reactor with membrane filtration. Each MBR process train would consist of an anoxic zone for denitrification, an aeration zone for soluble BOD reduction and nitrification, and a membrane filtration zone for solids removal. Two MBR trains would be provided, each sized to handle half of the peak design wastewater flow. This would allow one process train to be taken offline for maintenance during off-peak days at the gaming facility. The MBRs would typically produce an effluent with BOD and TSS levels of less than 2 mg/L, and a turbidity of less than 1 NTU. The components of the MBR are described below.

Anoxic Zone. An anoxic basin would be provided for each process train. Nitrate removal, a process called denitrification, is accomplished in this basin by a suspended growth bacterial process that thrives in an anoxic environment. In the absence of oxygen, denitrifying bacteria use energy for cell growth from the conversion of nitrates to nitrogen gas. The hydraulic retention time (HRT) would be approximately 8 hours for complete denitrification. The incoming raw wastewater provides a continuous carbon source needed for denitrifying bacteria cell synthesis.

In addition, some carbon would be supplied in the recirculated biomass through endogenous decay. The anoxic zones would be equipped with mechanical mixers to aid in the denitrification process. From the anoxic zones, the wastewater would flow to the aeration tanks.

Aeration Zone. An aeration basin would be provided for each process train. Wastewater entering the tank would be aerated by process air blowers, supplied through a fine bubble diffuser system installed at the bottom of the aeration tank. Soluble organics are converted into biomass by an aerobic suspended growth process. In this process, microorganisms utilize the carbon in the wastewater for energy and cellular synthesis. The recirculated mixed liquor entering the aeration basin from the anoxic basin provides a continuous source of bacteria. Conversion of ammonia to nitrates, called nitrification, occurs in the aeration basin. Nitrifying bacteria incorporate ammonia-nitrogen into respiration and cell synthesis processes and produce nitrates as a byproduct.

Membranes. The membranes would be located in the corner of the aeration basin for each process train. Membrane cassettes would be immersed in each basin; each cassette would contain eight membrane modules. A membrane module consists of a bundle of hollow ultrafiltration or ultrafiltration fibers, with a typical nominal pore size of approximately 0.1 μ m.

A vacuum would be applied to the module headers to draw the wastewater from the process tank through the membrane. Wastewater would then flow through the hollow fibers to a permeate pump. The permeate pump would transfer the wastewater to the UV disinfection facilities or to the seasonal storage reservoir. A typical MBR tank is shown in Figure 4-10.

Mixed liquor from the membrane zone would be continuously recycled back to the anoxic zone by a recycle pump in each membrane tank. This oxidized and nitrified recycle stream would be blended with raw sewage, which is a source of carbon source, to enable denitrification to occur in the anoxic zone. Periodically, a sludge waste pump located in each membrane zone would waste excess mixed liquor to the belt filter press where it is dewatered and eventually hauled off site for disposal.

Raw sewage is fed to the underside of the membranes to prevent solids from binding on the surface of the membranes. Piping and backwash storage tanks would be provided for periodic backwash of the membranes. Five backwash storage tanks would be provided, each with a storage capacity of approximately 3,000 gallons. The backwash tanks would be filled with permeate from the MBRs. Sodium hypochlorite would be added to the backwash for control of regrowth on the membrane strands. It is expected that the chlorine demand in the permeate would consume any chlorine introduced by the backwash cycle.

A overhead crane with a traveling bridge would be provided for maintenance use. The crane would be used to maneuver membrane cassettes for service and/or soak cleaning in a chemical

dip tank (containing a mild sodium hypochlorite solution) located at the end of the basin structure. Chemical pumps would be provided for transfer of sodium hypochlorite to the dip tank.

UV Disinfection. Membrane-filtered effluent is well suited for disinfection by UV light due to the very low solids content. UV disinfection would eliminate the need to store large quantities of disinfectant chemicals, such as sodium hypochlorite. An additional benefit is that disinfection by-products are not formed.

UV disinfection facilities would be provided for disinfection of wastewater prior to subsurface disposal or spray field disposal. The proposed UV disinfection facilities would be located adjacent to the MBR basins as shown in Figure 4-10. UV disinfection is accomplished by a bank of UV lamps contained in a stainless steel channel with a built-in weir-level control system.

Dosage requirements and certain operational features and controls of the UV system would meet Title 22 recycled water requirements. UV disinfection lamps would utilize low-pressure, high-intensity lamps. A packaged control system would be supplied by the UV system vendor.

Chlorine Disinfection. A hypochlorite feed system would be used to provide chlorination to the recycled water prior to being pumped into the recycled water storage tank. Chlorination disinfects the treated wastewater while maintaining a chlorine residual of 1-2 mg/L in the storage tank and the dual-plumbed piping system. This low residual should be effective in preventing any regrowth in the recycled water distribution system. The contact time needed for complete mixing of the solution would be accomplished in the recycled water distribution piping.

Recycled Water Pump Station. A recycled water pump station would be required for recycled water distribution. The size and type of pumps required would be determined based on the hydraulic flow and storage characteristics and requirements of the system.

Emergency/Equalization Storage Basin. The emergency/equalization storage basin (E/ESB) is located within the WWTP site, as shown in Figure 4-8, and is intended to serve two functions. As an equalization basin, the E/ESB is intended to attenuate peak influent flows by diverting excess wastewater upstream of the MBR tank. This ensures that the MBR receives a relatively constant flow of wastewater. Once influent flows have subsided, the stored wastewater is returned to the treatment train.

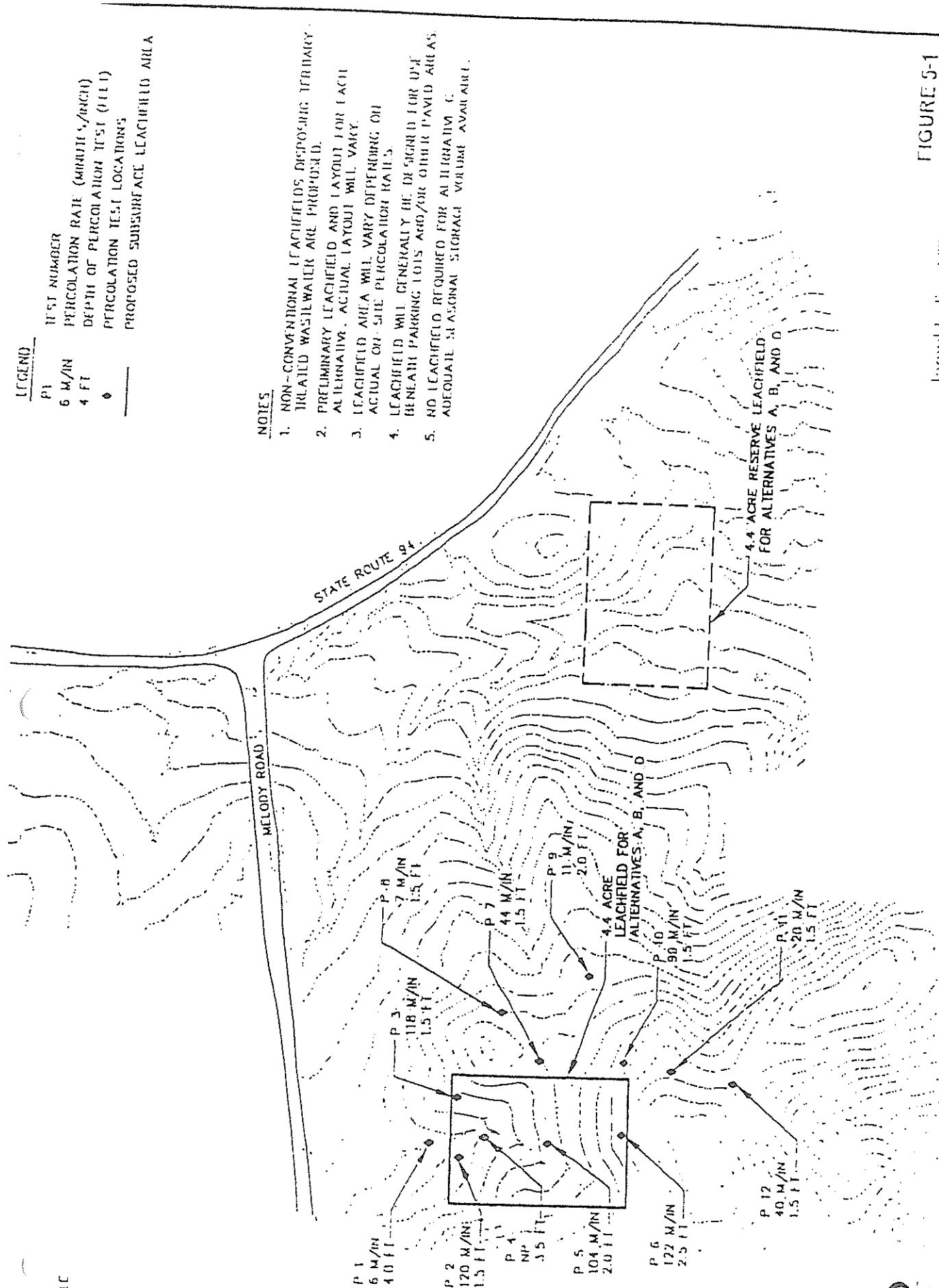
In addition, the E/ESB can also serve as a temporary storage reservoir in the event that the MBR is not in service. In the event of complete mechanical shut-down or failure, raw wastewater could be screened by the headworks via a manually-screened overflow channel and be diverted to the E/ESB for emergency storage by gravity. When wastewater treatment systems are online again, the stored wastewater can be pumped back into the process train for treatment.

Operations Building. An operations building would be required to house the plant controls, the motor control center, the blowers required for the MBR process, the chemical storage and handling facilities, and other mechanical equipment. A preliminary plan of the building is shown in Figure 4-11. The building would also include a maintenance room. A small laboratory would be provided for on-site testing and sample preparation. In addition, a small locker room

with showers would be provided. Roll-up doors would be provided for entry to the blower room. Double-doors would provide access to the electrical and chemical rooms.

The building would be a masonry, single-story structure with a standing seam-painted metal roof. A combination of plain block and split-face block would be used. Interior walls would be either masonry or metal stud with drywall. Suspended ceiling and lighting panels would be provided in some rooms with utilities and ventilation ducting in the overhead space.

NOT TO SCALE



LEGEND

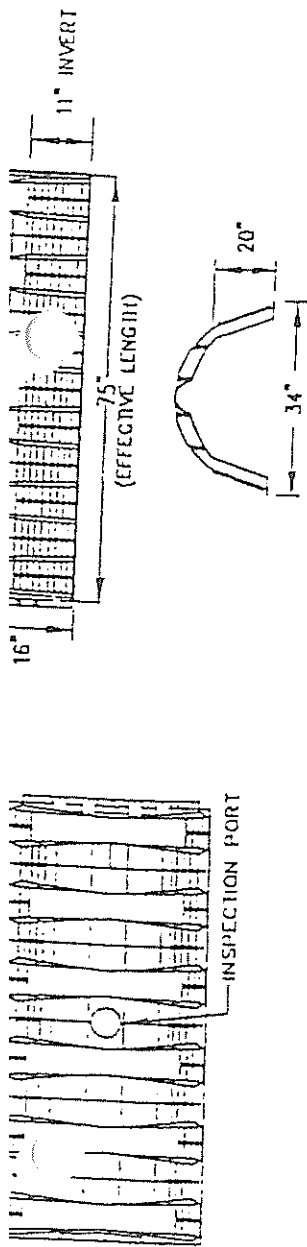
- PI TEST NUMBER
- 6 M/IN PERCOLATION RATE (MINUTE 1/INCH)
- 4 FT DEPTH OF PERCOLATION TEST (FEET)
- ◊ PERCOLATION TEST LOCATIONS
- PROPOSED SUBSURFACE LEACHFIELD AREA

NOTES

1. NON-CONVENTIONAL LEACHFIELDS DISPOSING TERTIARY TREATED WASTEWATER ARE PROPOSED.
2. PRELIMINARY LEACHFIELD AND LAYOUT FOR EACH ALTERNATIVE. ACTUAL LAYOUT WILL VARY.
3. LEACHFIELD AREA WILL VARY DEPENDING ON ACTUAL ON-SITE PERCOLATION RATES.
4. LEACHFIELD WILL GENERALLY BE DESIGNED FOR USE BENEATH PARKING LOTS AND/OR OTHER PAVED AREAS.
5. NO LEACHFIELD REQUIRED FOR ALTERNATIVE C. ADEQUATE SEASONAL STORAGE VOLUME AVAILABLE.



FIGURE 5-1
Jannul Indian Village Feasibility Study
Conceptual Leachfield Layouts



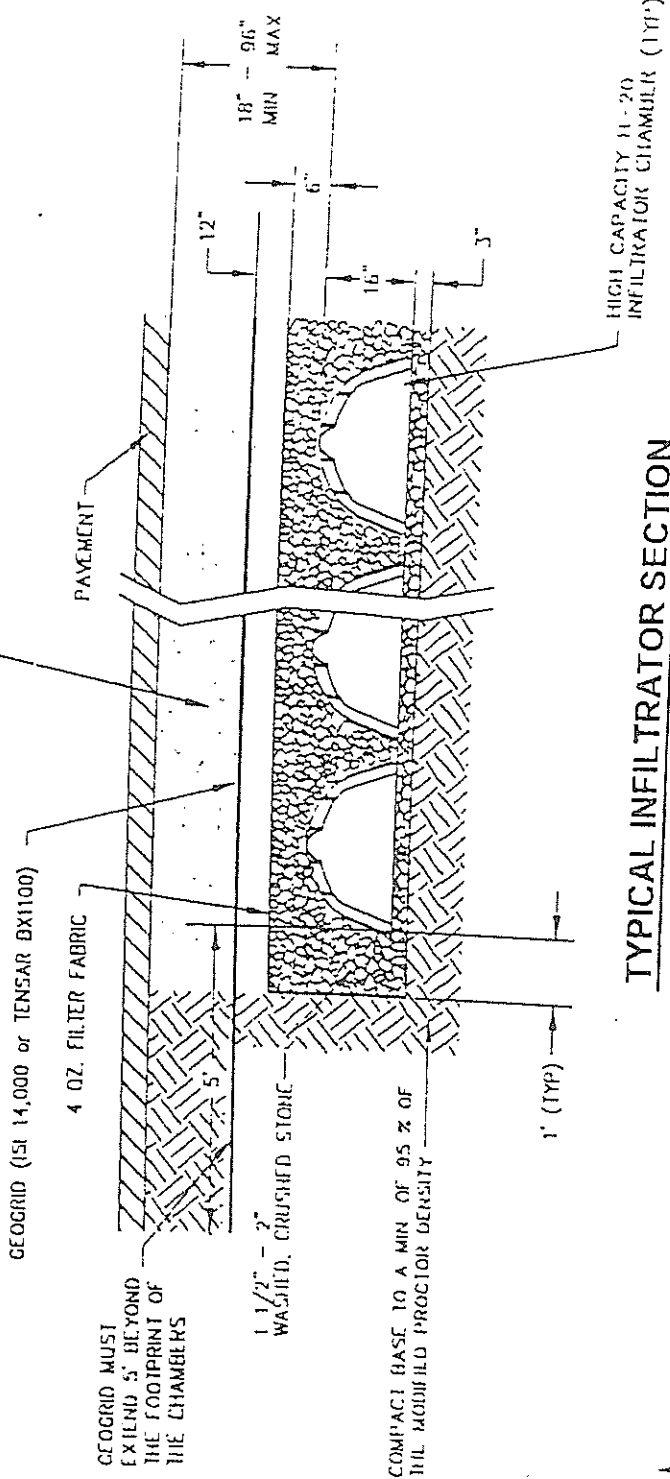
TYPICAL INFILTRATOR DETAIL

NOT TO SCALE

NOTES:

1. TWO VERIFIED MANHOLES, ONE AT EACH END OF THE CLUSTER TRENCH, WOULD BE RE-INSTALLED TO INCREASE OXYGEN WITHIN THE SOIL.
2. INSTALLED ACCORDING TO STATE AND LOCAL REGULATIONS.

WELL GRADED GRANULAR BACKFILL, COMPACTED TO 95% MODIFIED PROCTOR DENSITY THE BACKFILL SHALL CONTAIN NO MORE THAN 10% FINES PASSING THE # 200 SIEVE



TYPICAL INFILTRATOR SECTION

NOT TO SCALE

FIGURE 5-2
Jamul Indian Village Feasibility Study
Typical Leachfield Layout

residential homes and Tribal government and health center. In addition, urban landscaping can also be irrigated with recycled water to further increase the recycled water demand during the summer. Irrigation demand comes from the irrigated areas distributed throughout the project area. The crop demands used in the water balance analysis assumed typical urban landscaping crop such as turf grass, evergreen shrubbery, and evergreen trees in a 60:20:20 ratio for area coverage. The total estimated monthly irrigation demands are summarized in Table 5-3 and were determined using the following formula:

$$ID_i = \frac{(ET_i - P \cdot e_p) \cdot l_i}{e_i}$$

$$ID_{tot} = \sum ID_i$$

where,

ID_{tot} = Total irrigation demand in inches.

ID_i = Irrigation demand of crop i in inches.

ET_i = Evapotranspiration for crop i .

P = Average precipitation.

e_p = Precipitation irrigation efficiency, 0.8. Assumes 20% of rainfall during growing season is lost to evaporation, runoff, etc.

l_i = Loss rate. A value of 1.1 assumes approximately 10% of the applied water passes through the crop root zone and is lost.

e_i = Irrigation efficiency, 0.8-0.9 depending on season. This assumes that 10-20% of the applied irrigation water is lost to evaporation.

As shown in Table 5-3, the total annual irrigation demand is estimated at 222 inches. A peak monthly irrigation demand of 41 inches is projected for July. The irrigation season is approximately eight months long, from March through October. No irrigation demands are projected for November through February when it is anticipated that local precipitation would satisfy landscape irrigation requirements.



NOT TO SCALE

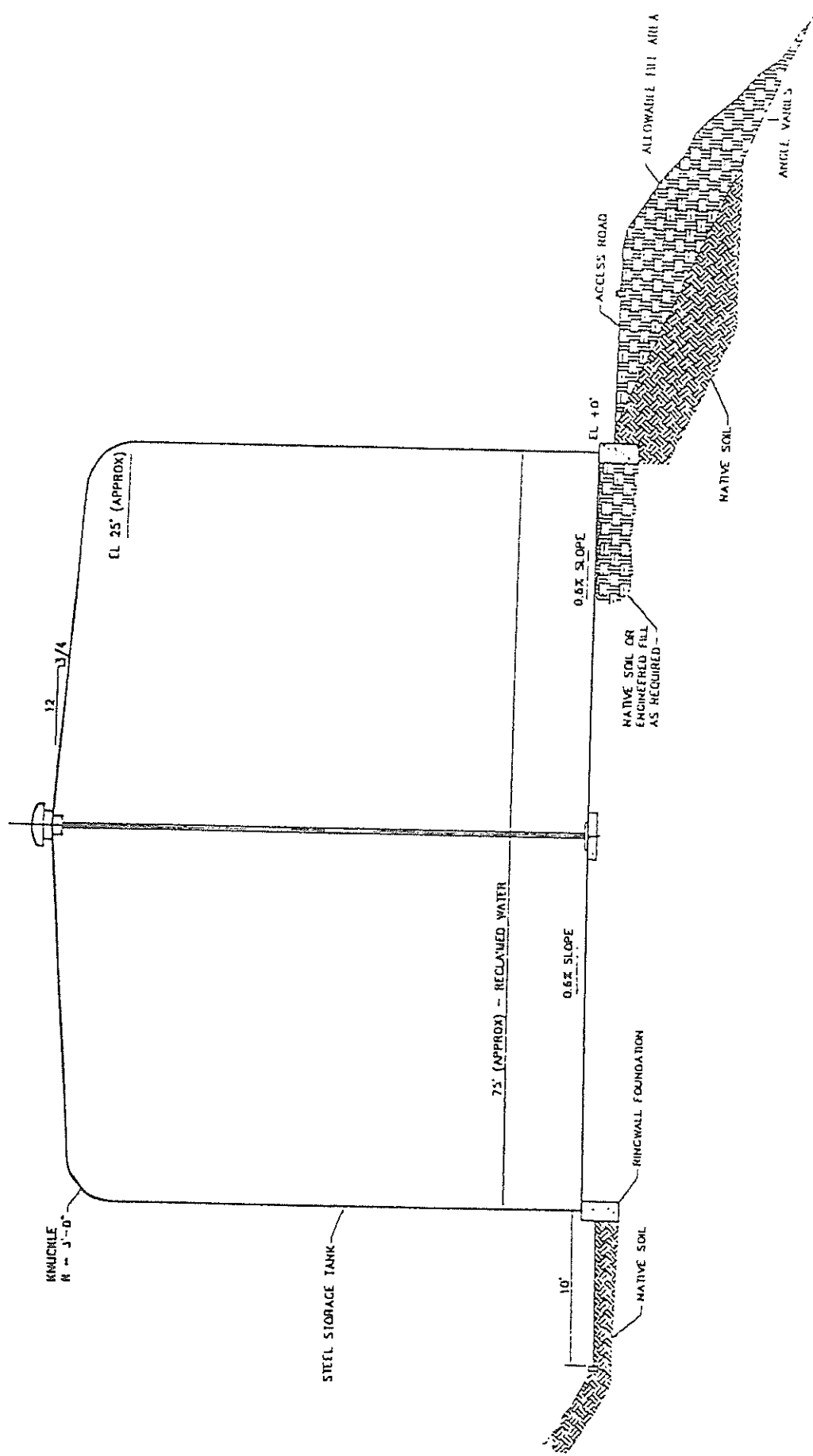


FIGURE 5-3
Jamul Indian Village Feasibility Study
Typical Recycled Water Storage Tank

- wastewater disposal requirements are reduced by year-round reclamation used on dual-plumbed toilet fixtures, and
- Irrigated areas are summarized in Table 5-5 and further illustrated in Figures 5-5 to 5-8, for Alternatives A to D, respectively.

The key element in this analysis is the seasonal storage volume. Preliminary analysis indicates sufficient landscaped area is available to dispose of the wastewater by means of irrigation during the summer. However, due to uncertainties in the leachfield capacity and to provide an added safety margin, seasonal storage is recommended to serve as a winter discharge option.

The seasonal storage reservoir would provide temporary storage of tertiary-treated effluent, particularly during the wet season when demand for recycled water from landscape irrigation is low. The seasonal storage reservoirs are not designed to receive raw wastewater. Under no circumstances would raw wastewater be placed into the seasonal storage reservoir. Consequently, there is no need to line the reservoir.

Design of the seasonal storage reservoir is limited by local site conditions. First, the amount of ground area that could be allocated for seasonal storage is limited to 0.5- to 0.75-acres. At the same time, the shallow soil depths restrict the vertical depth of the storage reservoir to 10 feet unless excavation through the underlying bedrock was desired. For the purpose of this analysis it was assumed that a total seasonal storage volume of 10 AF could be made available either by increasing the available area and/or increasing the operating depth of the seasonal storage reservoir. Deeper seasonal storage reservoirs may be possible provided a minimum vertical separation of 3-ft is maintained between the bottom of the reservoir and the top of the groundwater table measured at a time when the seasonal groundwater fluctuation is the greatest. Knowing the quantity of wastewater to be disposed of and fixing the seasonal storage volume then allows the leachfield capacity to be determined.

2.2 Water Balance Results

Results of this analysis, summarized in Table 5-5, indicate that approximately 49,000 to 56,000 gpd of leachfield capacity would be required for Alternatives A, B, and D. For Alternative C, the 10 AF of seasonal storage is adequate to store the wet seasonal wastewater. No dedicated sprayfield area was considered in this evaluation. If dedicated sprayfields are developed, they could reduce the landscape irrigation requirements since sprayfield crops typically have higher water uptake rates.

Monthly trends showing the relation between leachfield, recycled water irrigation, and storage operation are shown in Figures 5-9 and 5-10 for each alternative. These figures illustrate the interrelation between leachfield and recycled water irrigation during the year. From November through March, the leachfield is used at full capacity without assistance from recycled water irrigation. Since the leachfield capacity is less than the wastewater being disposed of, a portion of the wastewater is directed for seasonal storage. The seasonal storage continues to be filled up to a maximum volume of 10 AF, and around March the irrigation demand starts increasing. Eventually, the irrigation demand increases beyond the amount of wastewater to be disposed. Leachfield use is stopped and disposal of current and stored wastewater is exclusively through landscape irrigation.

LEGEND

LANDSCAPE IRRIGATION

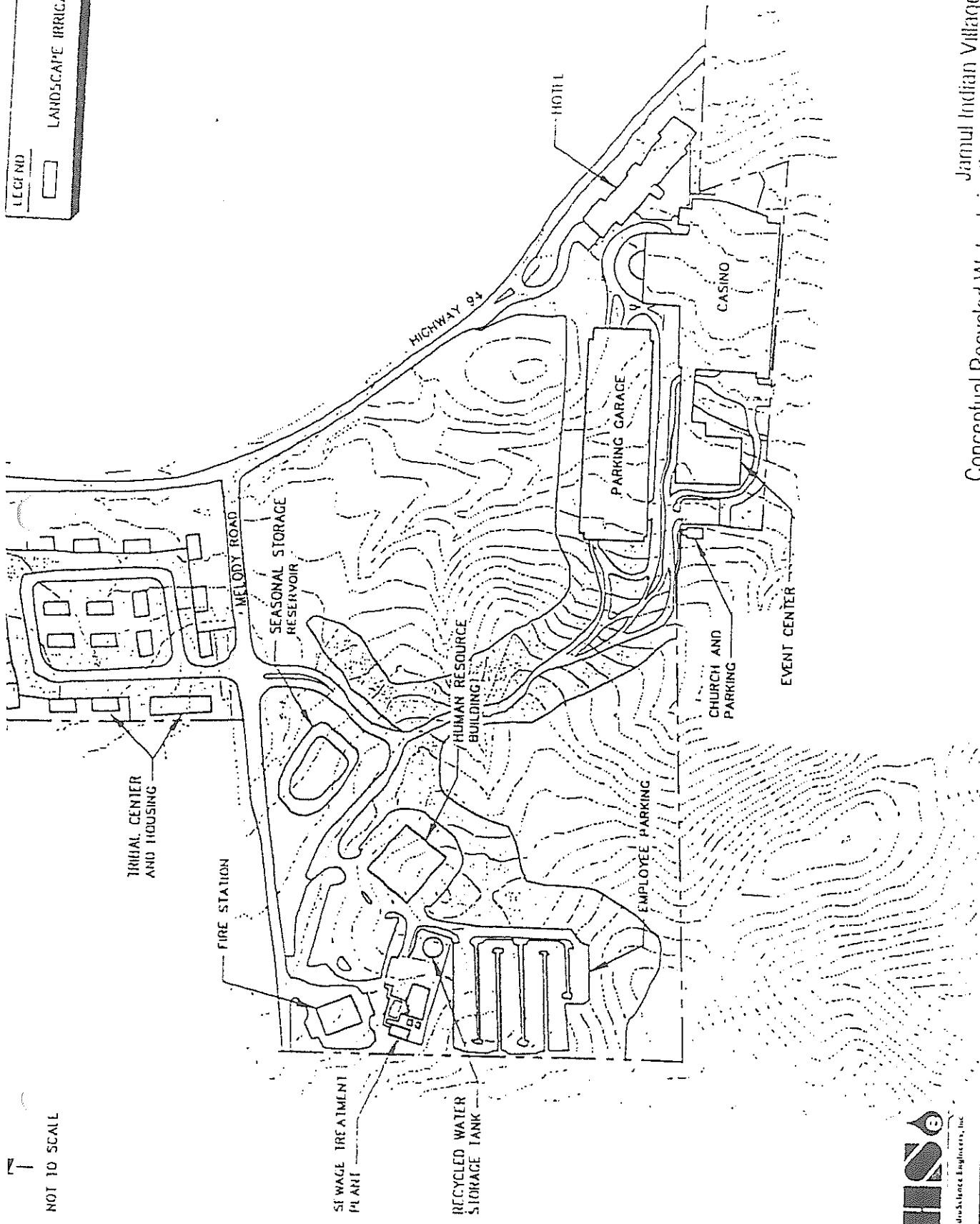



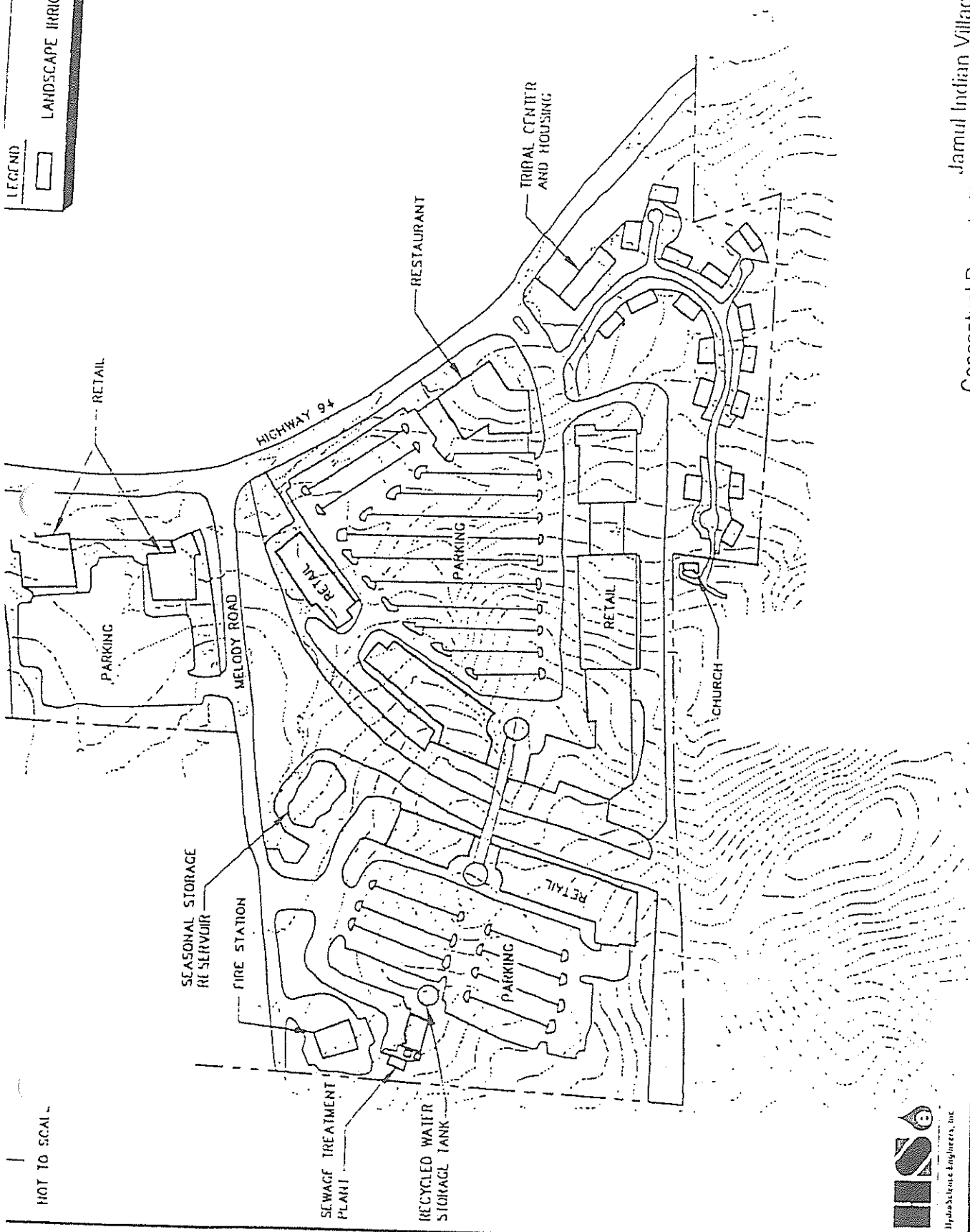
FIGURE 5-5
Jamul Indian Village Feasibility Study
Conceptual Recycled Water Irrigation Areas for Alternative A Phase B

NOT TO SCALE



LEGEND


 LANDSCAPE IRRIGATION

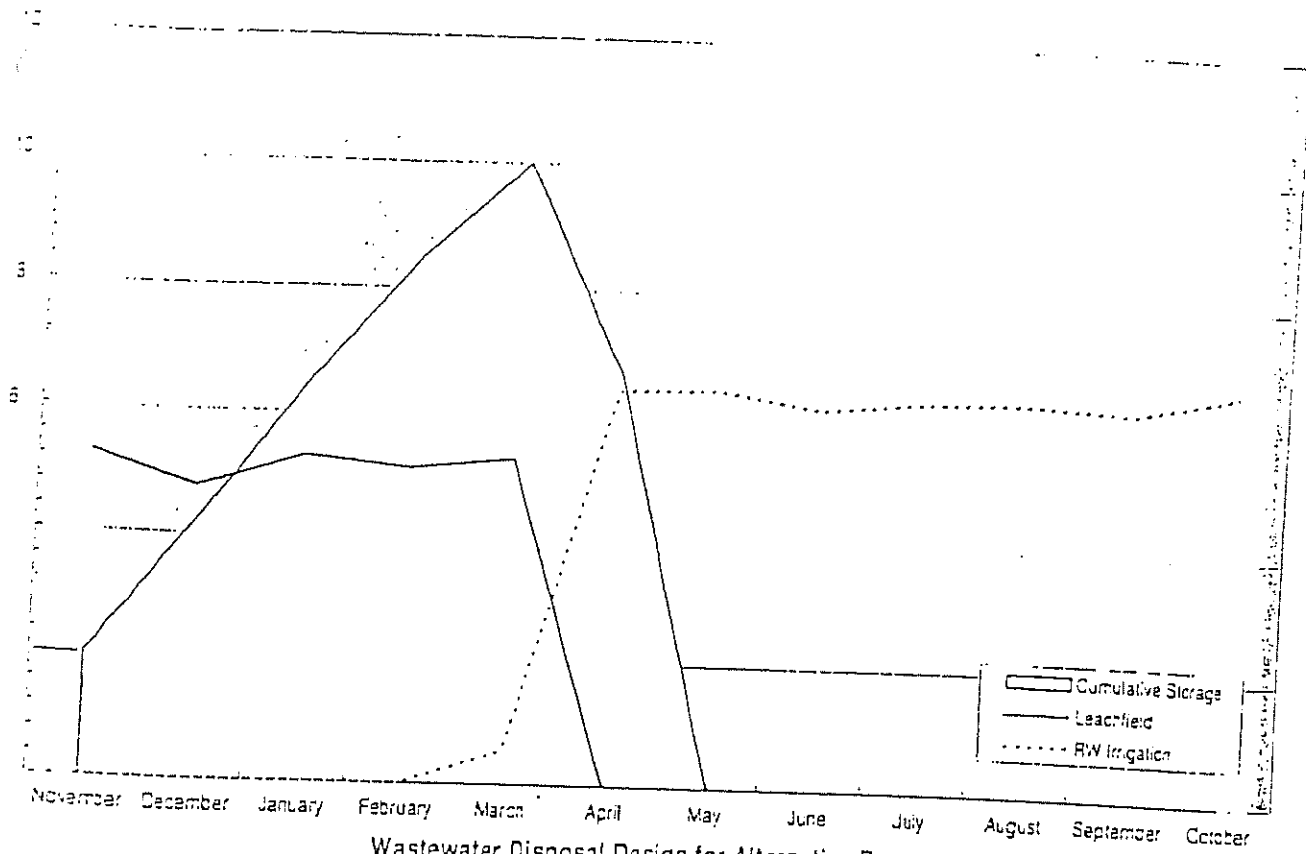


NOT TO SCALE



FIGURE 5-7
Jamul Indian Village Feasibility Study
Conceptual Recycled Water Irrigation Areas for Alternative C

Wastewater Disposal Design for Alternative A



Wastewater Disposal Design for Alternative B

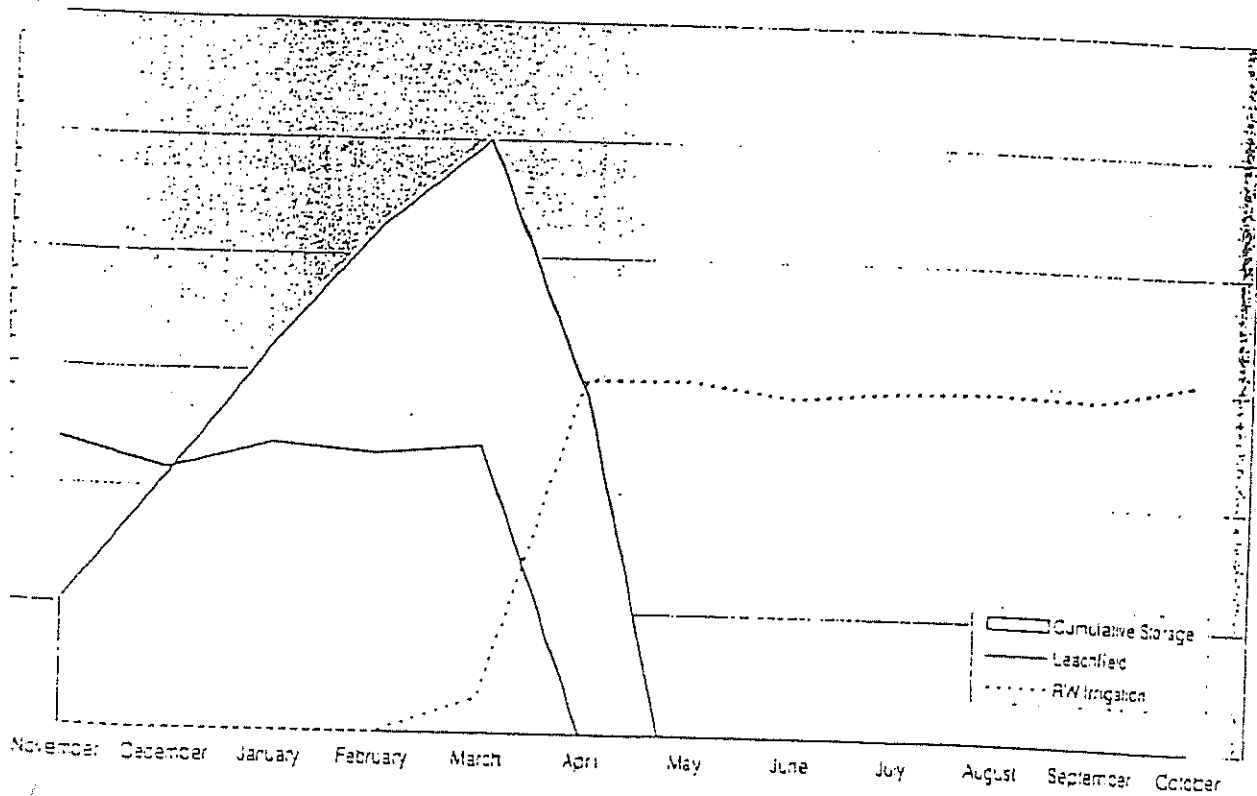


FIGURE 5-9
Jamul Indian Village Feasibility Study
Disposal Design for Alternatives A and B

TABLE 5-5
Capacity (gpd) Summary for Disposal Design Options without Sprayfield Irrigation ^a

| | Alt. A ^a | Alt. B | Alt. C | Alt. D |
|---|---------------------|---------|---------|---------|
| Wastewater disposal ^b | 75,000 | 65,000 | 24,000 | 60,000 |
| Average day recycled water irrigation demand ^c | 157,000 | 156,000 | 144,000 | 111,000 |
| Sprayfield capacity ^d | 0 | 0 | 0 | 0 |
| Leachfield capacity ^e | 55,000 | 51,000 | 5,000 | 49,000 |

^a Rounded up to the nearest 1,000 gpd.

^b Wastewater disposal requirement with reclamation.

^c See Appendix G for water balance analysis.

^d Buildout (Phase B) condition.

^e Average day recycled water irrigation demand averaged over April to September.

For the purpose of this study, it was assumed that no dedicated sprayfields would be developed for the project. The Tribe may elect to dedicate specific areas of the project site to effluent disposal sprayfields in lieu of landscaping irrigation to minimize peak dry season irrigation requirements.

^f Estimated leachfield capacity required in conjunction with recycled water irrigation, seasonal storage, and dual-plumbing. The capacity shown does not currently include contingencies for redundancy during emergency conditions.

TABLE 5-6
Sizing Summary for Disposal Design Options without Sprayfield Irrigation ^a

| | Units | Alt. A ^a | Alt. B | Alt. C | Alt. D |
|--|-------|---------------------|--------|--------|--------|
| Seasonal storage volume | AF | 10 | 10 | 10 | 10 |
| Recycled water irrigated acreage ^b | acre | 16.64 | 17.54 | 16.10 | 12.42 |
| Sprayfield acreage ^c | acre | 0 | 0 | 0 | 0 |
| Leachfield acreage ^d | acre | 4.3 | 3.8 | 0.4 | 3.7 |
| Leachfield acreage with 100% redundancy ^e | acre | 8.6 | 7.6 | 0.8 | 7.4 |

See Appendix G for complete water balance analysis.

See Figures 5-6 to 5-9 for locations of the irrigated areas for Alternatives A to D, respectively.

Dedicated sprayfield area with restricted public access. For the purpose of this study, it was assumed that no dedicated sprayfields would be developed for the project. The Tribe may elect to dedicate specific areas of the project site to effluent disposal sprayfields in lieu of landscaping irrigation to minimize peak dry season irrigation requirements.

Assumed per 0.3 gpd/ft² hydraulic loading rate. Actual rates may vary depending on on-site percolation tests. Note: safety factor applied. Design would increase area requirements to typically provide 100% redundancy.

Typical leachfield design incorporating 2.0 factor of safety on land area requirement. This is equivalent to 100% redundancy in the event of total failure from the primary leachfield.

Buildout (Phase B) condition.

2.3 Regulatory Review

The wastewater treatment and disposal system would be a zero-discharge system. Discharge to surface water, either on a regular, seasonal, or emergency basis is not anticipated to be required. The disposal capacity through the combination of leachfield and recycled water irrigation is anticipated to be developed. Moreover, leachfield design would incorporate redundancy,

6.0 Conclusion

Each of the four project alternatives was evaluated and found to be feasible in terms of water, wastewater, and recycled water service. Water supply is adequate, of high-quality, and should only require transmission lines to service the individual facilities. Wastewater collection is likely to require lift stations and collection pipelines to convey the raw wastewater to the WWTP. On-site wastewater treatment using MBR technology is feasible and can produce high-quality wastewater effluent consistently and reliably. Based on the facility plans and preliminary geotechnical information, there is also adequate space to dispose of the wastewater using a combination of landscape irrigation and leachfields provided that all the facilities, except the residential homes and Tribal government and health centers, are equipped for dual-plumbed toilet fixtures. Specific conclusions from this study are outlined below.

6.1 Projected Flows

Water demand and wastewater disposal is reduced with reclamation. Implementing a recycled water program is critical to project feasibility. Use of recycled water for landscape irrigation and dual-plumbing of toilet fixtures in all facilities has the dual benefit of reducing both the potable water demand and wastewater disposal requirements. Meanwhile, reduction of the wastewater disposal requirement would reduce the disposal area that needs to be developed, enabling all project alternatives under consideration to become feasible. Site constraints inevitably could limit the alternatives available for disposal of treated wastewater.

Potable water demand with and without reclamation are summarized in Table 6-1. Net wastewater disposal requirements with and without reclamation are summarized in Table 6-2.

LE 6-1

Comparative Water Demand (gpm) With and Without Reclamation *

| Flow condition | Alt. A | | Alt. B | Alt. C | Alt. D |
|--|---------|---------|--------|--------|--------|
| | Phase A | Phase B | | | |
| Maximum day demand without reclamation | 124 | 154 | 143 | 31 | 144 |
| Maximum day demand with reclamation | 43 | 59 | 55 | 18 | 54 |

*Rounded up to the nearest 10 gpm.

6-3. This sizing is preliminary and based upon our understanding of the project. Determination of final effluent disposal facility requirements would require a detailed local hydrogeological investigation, knowledge of project landscaping, and other design parameters.

TABLE 6-3
Sizing Summary for Disposal Design Options without Sprayfield Irrigation^a

| | Units | Alt. A ¹ | Alt. B | Alt. C | Alt. D |
|--|-------|---------------------|--------|--------|--------|
| Seasonal storage volume | AF | 10 | 10 | 10 | 10 |
| Recycled water irrigated acreage ² | acre | 16.64 | 17.54 | 16.10 | 12.42 |
| Sprayfield acreage ³ | acre | 0 | 0 | 0 | 0 |
| Leachfield acreage ⁴ | acre | 4.3 | 3.8 | 0.4 | 3.7 |
| Leachfield acreage with 100% redundancy ⁵ | acre | 8.6 | 7.6 | 0.8 | 7.4 |

^a See Appendix G for complete water balance analysis.

¹ See Figures 5-6 to 5-9 for locations of the irrigated areas for Alternatives A to D, respectively.

² Dedicated sprayfield area with restricted public access. For the purpose of this study, it was assumed that no dedicated sprayfields would be developed for the project. The Tribe may elect to dedicate specific areas of the project to effluent disposal sprayfields in lieu of landscaping irrigation to minimize peak dry season irrigation requirements.

³ Assumed per 0.3 gpd/ft² hydraulic loading rate. Actual rates may vary depending on on-site percolation tests. Note: safety factor applied. Design would increase area requirements to typically provide 100% redundancy.

⁴ Typical leachfield design incorporating 2.0 factor of safety on land area requirement. This is equivalent to 100% redundancy in the event of total failure from the primary leachfield.

⁵ (Phase B) condition.

Conduct additional percolation testing. Full design of disposal leachfields would require additional information on the geotechnical properties of the soil. Additional percolation testing is recommended on candidate leachfield disposal site(s) to evaluate the suitability of leachfield construction and to establish design criteria information.

Conduct hydrogeological evaluation. The purpose of a hydrogeological evaluation is to provide information on the local groundwater, such as identifying the predominant subsurface hydraulic gradient. Due to the local soil characteristics and the dependence on subsurface disposal, information on the hydrogeology of the site would identify possible siting constraints for areas selected for use and disposal of tertiary-treated recycled water.

Install monitoring wells. Monitoring well installations are recommended to monitor groundwater quality and groundwater level to ensure use and disposal of tertiary-treated recycled water effluent on-site does not cause degradation of the groundwater basin. These monitoring wells, designed and constructed to meet prevailing County standards, would provide monitoring of seasonal variations in the groundwater table and also provide a venue for obtaining samples for analytical testing. At a minimum, consideration should be made to installing monitoring wells at the following locations:

At the uppermost, on-site hydraulic groundwater gradient to provide background groundwater quality information before and during project development, upgradient and downgradient of candidate leachfield disposal site(s), and

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9.0 Acknowledgements

This report is the collective effort of many. The contribution of planning, engineering, and design expertise of individuals on the project team added value to the project and made this report complete. This section acknowledges the HydroScience Engineers team members that contributed to this project. Key members include:

- George Harris – Principal-in-Charge
- Dennis Sanchez – Project Manager
- Eric Jones – Associate Engineer
- Shane Gibbons – Designer

We also acknowledge AES for their support. Their knowledge of the project made our efforts easier and the final document much more useful. Key members from AES include:

Joe Broadhead – Principal
Josh Ferris – Associate
Leanne Canevaro – Associate

Revised Wastewater Disposal Evaluation for the Jamul Indian Village

TO: Joe Broadhead/AES
Josh Ferris/AES

COPIES: Dennis Sanchez/HydroScience

FROM: Michael Ducker/HydroScience

DATE: June 30, 2003

Pursuant to USEPA comments on the draft environmental impact statement (DEIS) for the Jamul Indian Village, Analytical Environmental Services (AES) retained HydroScience Engineers (HSe) to re-evaluate the wastewater disposal design at the proposed Jamul Indian Village project. Preliminary wastewater disposal designs consisted of non-conventional leachfields utilizing high-capacity chambers with sufficient structural integrity to enable installation beneath paved parking lots. This leachfield system was proposed at two separate locations, the first acting as the primary leachfield and the second as a reserve for 100% redundancy. Based on recently acquired soils information however, it was determined at an alternative leachfield design would be required for improved reliability. HSe's objective were to:

- Evaluate alternative disposal designs such that each project alternative is equipped with 100% operational redundancy in disposal capacity,
- Complete a more detailed geological investigation of the site to ascertain information on site percolation capacity and groundwater levels, and
- Develop a more detailed design of the disposal system for each alternative.

In association with Applied Engineering and Geology, Inc. (AEG), HSe completed additional investigation of the site geology for disposing of tertiary treated wastewater to all four proposed project alternatives. This technical memorandum (TM) completes HSe's report on the disposal alternatives. It summarizes the soils evaluation conducted by AEG, includes preliminary disposal system layouts for each alternative, and presents conclusions for a revised disposal design.

Background

The Jamul Indian Village is considering four project alternatives, A through D, consisting of a gaming facility and/or a retail center, plus surrounding commercial and residential development. Each alternative involves varying degrees of site development and ultimately wastewater quantities that must be safely disposed of on-site. Based on the designated land use and areas, wastewater disposal would utilize a combination of urban irrigation and leachfields.

TABLE 2

Mantle and Percolation Test Results

| Test Point | Soil Type, USEPA | Layer Depth (feet) | Soil Description (USEPA) | Percolation Test | |
|------------|-------------------|--------------------|--------------------------|-----------------------------|-----------------------|
| | | | | Percolation Test Depth (ft) | Percolation Rate (mp) |
| TP-1 | sandy clay loam | 1.5 | M, SL | | |
| | sandy clay | 2.5 | M, SL | | |
| | sandy clay DG | 2.5- | M, stiff, hard | P-1 | 3.2 150 |
| TP-2 | silty sand | 0-4 | SG, SL | | |
| | DG | 4+ | ? | P-2 | 4.2 43 |
| TP-3 | clayey sand | 1 | M, SL | | |
| | DG | 1- | ? | P-3 | 2.75 32 |
| TP-4 | silty sand | 2 | M, SL | P-4 | 2.75 19 |
| TP-5 | sandy loam | 3.5 | SG, SL | | |
| | DG, clayey sand | 3.5+ | M, SL | P-5 | 4 150 |
| TP-6 | clay loam | 0-0.5 | M, SL | | |
| | sandy loam | 1.5+ | M, SL | P-6 | 2.5 8.5 |
| TP-7 | sandy loam | 2.5 | M, SL | | |
| | sandy clay | 4 | M, SL | P-7 | 3.9 1000 |
| TP-8 | clay loam | 0.5 | M, SL | | |
| | sandy loam | 2+ | M, SL | P-8 | 2.5 50 |
| TP-9 | clayey sandy loam | 4 | M, SL | | |
| | clayey sandy silt | 4.5 | M, SL | | |
| | silty sand | 5.5 | SG, SL | P-9 | 5 9 |
| | silty sand | 8 | SG, SL | | |
| TP-10 | sandy silt | 2 | M, SL | P-10 | 2.6 6 |
| TP-11 | silty sand | 3 | M, SL | | |
| | DG | ? | | P-11 | 3.8 100 |
| TP-12 | sandy clay loam | 2.5+ | M, SL | P-12 | 2.6 8 |
| TP-13 | sandy loam | 1.5 | M, SL | | |
| | DG | | | P-13 | 2.9 300 |
| TP-14 | sandy loam | 2 | M, SL | | |
| | sandy clay | 3 | M, SL | | |
| | DG | ? | | P-14 | 3.6 60 |
| TP-15 | sandy loam | 2 | M, SL | | |
| | DG | ? | | P-15 | 2.7 21 |
| TP-16 | sandy loam | 3 | M, SL | | |
| | sandy DG | | M, SL | P-16 | 3.9 13 |
| TP-17 | sandy clay loam | 5 | M, SL | P-17 | 3.75 15 |
| | sand | 8 | SG, SL | | |
| | DG | ? | | | |
| TP-18 | sandy loam | 2 | M, SL | P-18 | 2.75 7.5 |
| TP-19 | sandy clay | 2 | M, SL | P-19 | 2.3 150 |
| TP-20 | sandy loam | 1 | M, SL | | |
| | sandy clay | 2 | M, SL | | |
| | clayey sandy loam | 5.5 | M, SL | | |
| | DG | ? | | P-20 | 3.3 10 |
| TP-21 | sandy silt | 2 | M, SL | P-21 | 2.6 10 |
| TP-22 | silty sandy loam | 2.5 | M, SL | | |
| | DG, silty sand | 4 | loose, SG, SL | P-22 | 3.2 20 |
| | sand | 5 | SG, SL | | |
| TP-23 | sandy silt | 3.5 | M, SL | | |
| | DG | | M, SL, friable, loose | P-23 | 2.2 8 |
| TP-24 | silty sand | 2.5 | SG, SL | P-24 | 2.4 33 |
| TP-25 | silty sand | 4 | SG, SL | P-25 | 3.2 4 |
| | silty sand | 5 | M, SL, dense | | |

disposal system. Additional soils information would be required that would focus on information essential for subsurface disposal on-site.

For the purpose of designing an on-site wastewater disposal system, AEG, in conjunction with HSe, completed extensive on-site soils testing in the spring of 2003. Between April 10-12, 2003, percolation and mantle tests were completed for areas south of Melody Road; similar tests were completed on areas north of Melody Road between May 14-15, 2003. A total of 29 mantle tests and 30 percolation tests were performed south of Melody Road while a total of 12 mantle tests and 12 percolation tests were performed north of Melody Road.

In addition to soil percolation characteristics, these investigations also acquired information on the local groundwater. Between June 11-13, 2003, two groundwater monitoring wells were installed in close proximity and down-gradient to proposed seasonal storage pond locations. Two existing domestic wells north of Melody Road were also mapped with a video camera to record slip angles of rock fractures to provide an idea of the fate and transport of the perched water and groundwater tables.

The following subsections summarize the results of AEG's on-site testing. It is organized according to:

- Test Locations,
- Mantle Tests,
- Percolation Tests,
- Percolation and Mantle Testing Results,
- Monitoring Wells,
- Well Logs,
- Recommended Hydraulic Loading Rates, and
- Recommended Disposal Areas.

The information included below was abstracted as it pertains to the preliminary design of the different disposal alternatives. Additional information can be acquired by referencing AEG's June 27, 2003 report, entitled *Results of Soil Mantle and Percolation Tests and Installation of Monitoring Wells*, which is attached to this TM. Ultimately, HSe utilized the test results and recommendations by AEG to generate the proposed disposal alternatives described in this TM.

Test Locations

Proposed percolation and mantle tests were located such that they could be made applicable to any of the four project alternatives under consideration. Considering each alternative presents varying degrees of site development, Alternative A, the preferred alternative, was selected as the baseline site for determining the general location of the soils tests. As necessary, individual soils test locations were adjusted to cover the other alternative design layouts. In addition, HSe and AEG also considered information from the preliminary grading plans, geographic points of interests, and proposed disposal system depths and configurations in selecting the test locations.

Percolation and Mantle Testing Results

The soils varied in moisture and rock content but are in most respects very similar. The surface soil layer consists of 1- to 5 feet of loam that was sandy, clayey or silty, loose, friable, massive, and with weak to no structure. The second layer is usually a clay layer that is sandy or silty, loose, friable, massive, sometimes firm, and exhibiting glazing or smearing on the test pit sidewalls. The third soil layer is typically deteriorated granitic rock (DG) with massive, single grain structure. The fourth layer is fractured rock or bedrock.

Percolation test results ranged from 3.3 minutes per inch (mpi) to infinity. Only 11 out of 41 tests had rates slower than 60 mpi. Using the average rate is not recommended since it would suggest certain soils have a hydraulic loading rate much greater than what is appropriate for the existing site conditions. The existing topographic, geologic, hydrogeologic, and soil conditions would be considered when developing a recommended hydraulic loading rate for each proposed disposal area. The mantle test soils logs and associated percolation test results are abstracted in Table 2.

Well Logs

An optical televiewer was used to log existing domestic Well 1 and the newly constructed monitoring well MW-2. Well 1 is a domestic well that is currently in use and located north of Melody Road and near the west property line. Water from Well 1 is considered non-potable. The existing pump and discharge piping was pulled from the well in order to perform the well log.

The borehole sidewall of Well 1 was very dark and seemingly covered with a growth. Only the larger fractures at 18, 37, 42, 51, and 56 feet bgs were observed in this well due to the poor visibility. The water level in Well 1 was at 40.5 feet and the bottom at 58 feet. It is anticipated that the borehole contained many small and hairline fractures spaced closer together.

Monitoring well was newly constructed near a proposed seasonal storage pond south of Melody Road. MW-2 had much better visibility due to the new construction and lack of growth on the borehole sidewall. The well shows fractures and hairline fractures spaced 1- to 2 feet apart with two primary strike directions of N 39-79° W and N 44-79° E.

Monitoring Wells

USEPA expressed concern with groundwater levels and water quality beneath the proposed seasonal storage ponds. Initial concerns focused on the groundwater separation beneath the seasonal storage ponds, which are required to be a minimum of 50 ft below the bottom of the pond. Considering the proposed ponds were estimated to be 20- to 30 feet in depth, the monitoring wells were bored to depths of 70- to 80 feet down-gradient of the proposed pond locations.

Monitoring wells MW-1 and MW-2 were installed next to but not under the proposed seasonal storage ponds. The static water levels on June 2003 in MW-1 and MW-2 were 35 ft below ground surface (bgs) and 29 ft bgs respectively. Static groundwater surface elevations in Well 1, Well 2, Cistern 1 and Spring 1 suggest approximate groundwater surface elevation from 946.5 ft to 910 ft with a southeastern gradient. It is unknown if the

TABLE 3
Recommended Hydraulic Loading Rates (gpd/ft²)

| Group No. | San Diego County | USEPA | AEG |
|-----------|------------------|-------|------|
| 1 | 0.76 | 0.37 | 0.40 |
| 2 | 0.71 | 0.67 | 0.40 |
| 3 | 0.87 | 0.50 | 0.40 |
| 4 | 0.87 | 0.90 | 0.40 |
| 5 | 0.71 | 0.66 | 0.60 |
| 6 | 0.41 | 0.14 | 0.14 |
| 7 | 1.61 | 0.53 | 0.50 |

These grouped areas did not include 13 of the 41 test locations since AEG does not recommend using these areas for disposal. Concerns include the proximity of a disposal area to a proposed cut or fill slope, a lack of knowledge about the permeability of the bedrock and direction of subsurface flow, potential landslides, proposed grading that would expose bedrock, subsurface drainage patterns, and poor soil conditions. Considering all these factors AEG recommended simplified and conservative hydraulic loading rates of 0.40-, 0.50- and 0.60 gpd/ft² for all six of the seven grouped disposal areas. Group #6 has a hydraulic loading rate of 0.14 gpd/ft². This is not to say that Group #6 is not recommended for use but that it is probably not a feasible use of land.

The USEPA hydraulic loading rates for each soil layer are taken from Table 4.3 of the EPA Onsite Wastewater Treatment Systems Manual (2002 edition). The USEPA average is the calculated average rate of all layers in all test pits in that disposal area, including those layers yielding 0.00-gpd/ft². By including the zero rates a more conservative average rate is calculated.

The San Diego County rates were calculated using the following equation.

$$AR = 5/\sqrt{T}$$

Where,

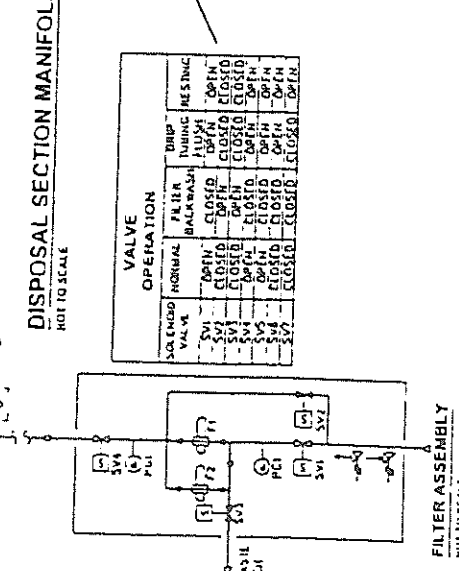
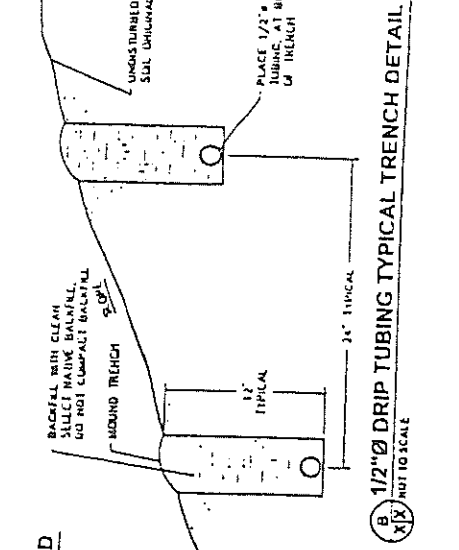
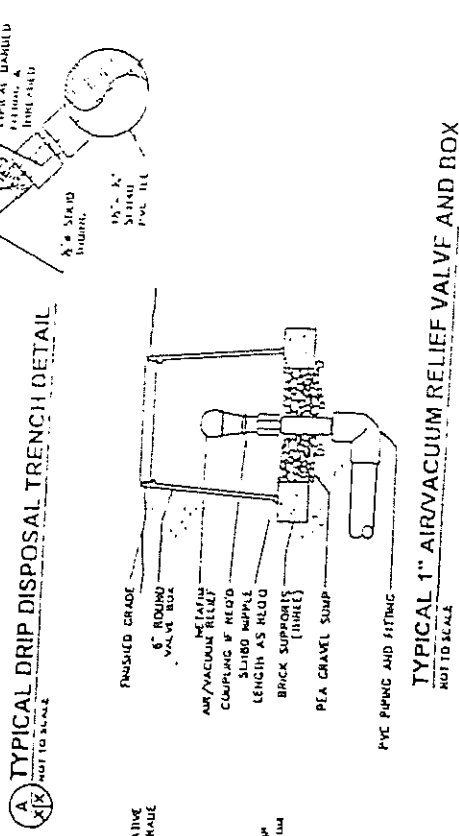
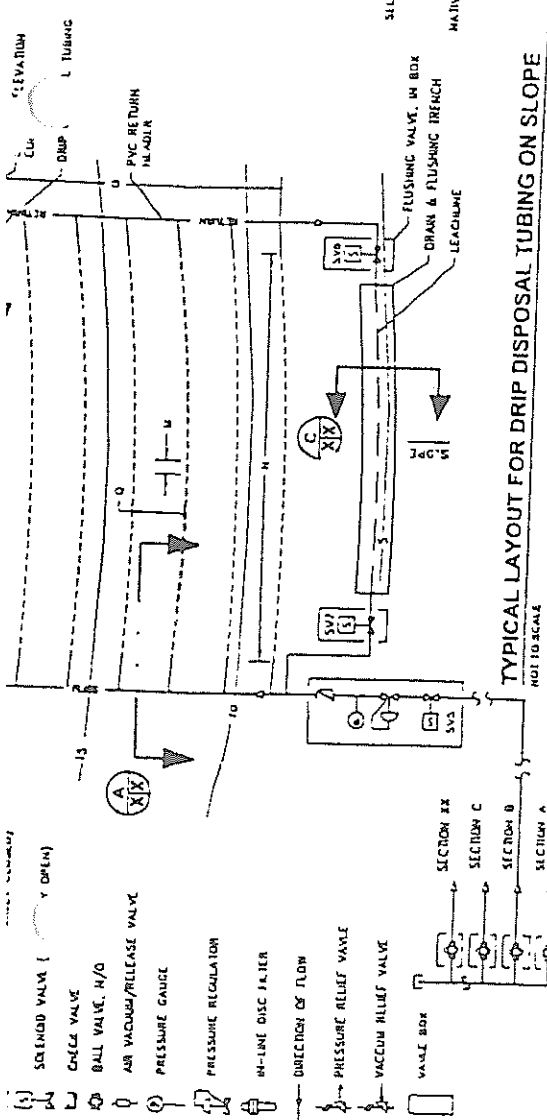
AR = Application Rate in gallons per square foot per day, (gpd/ft²)

T = Percolation rate in mpi

In areas where more than one percolation rate is used a geometric mean of the percolation rates is used to find T.

Recommended Subsurface Disposal Method

During the winter the urban irrigation system may not be in use due to storm events and wet surface soil conditions. It is recommended that a subsurface drip disposal system be used as a winter disposal system. The proposed drip disposal system consists of ½ inch



| VALVE OPERATION | | TESTING | | | |
|-----------------|-----------|------------------|---------------|---------|--|
| SOLENOID VALVE | OPERATION | FLIER BALL VALVE | TURBINE FLUID | TESTING | |
| ON | CLOSED | CLOSED | FLUID | OPEN | |
| OFF | CLOSED | OPEN | CLOSED | CLOSED | |
| ON | CLOSED | OPEN | FLUID | OPEN | |
| OFF | CLOSED | CLOSED | CLOSED | CLOSED | |
| ON | CLOSED | CLOSED | FLUID | OPEN | |
| OFF | CLOSED | OPEN | CLOSED | CLOSED | |
| ON | CLOSED | CLOSED | FLUID | OPEN | |
| OFF | CLOSED | OPEN | CLOSED | CLOSED | |



Alternative A

Alternative A is the preferred alternative and has the highest disposal requirements of all the alternatives. The proposed winter disposal for Alternative A consists of seasonal storage ponds, a larger aboveground storage tank, and leachfields in areas north and south of Melody Road. The disposal system for Alternative A is shown in Figure 2. Two seasonal storage ponds are proposed a 10 ac-ft and a 7.6 ac-ft plus a 1.0 MG above ground storage tank for a net storage capacity of 20.67 ac-ft (6,734,000 gal). The 1.0 MG above ground storage tank is proposed in place of the earlier 375,000 gal process tank near the WWTP.

For this storage capacity a total of 65,234 gpd of disposal field capacity is required. A total of 134,610 ft² (3.09 ac) of drip disposal field is proposed for Alternative A. The proposed disposal fields are located both north and south of Melody Road. The proposed disposal capacity is 65,683 gpd, which provides a redundant disposal capacity of 101%.

Alternative B

Alternative B develops the site most of any of the four alternative site plans. A balance of disposal fields and storage ponds are used to maintain a system with minimal storage and a 100% redundant disposal field. The disposal system for Alternative B is shown in Figure 2.

Three seasonal storage ponds are proposed at 10.0-, 7.6-, and 2.03 ac-ft plus a 1.0 MG above ground storage tank. The total proposed storage is 22.7 ac-ft (7,396,000 gal). The 1.0 MG above ground storage tank is proposed in lieu of the 375,000 gal recycled water storage tank the WWTP.

For this storage capacity a total of 45,508 gpd of disposal field capacity is required. A total of 91,883 ft² (2.11 ac) of drip disposal field is proposed for Alternative B. The proposed disposal fields are located both north and south of Melody Road. The proposed disposal capacity is 48,592 gpd, thereby providing a redundant disposal capacity of 107%.

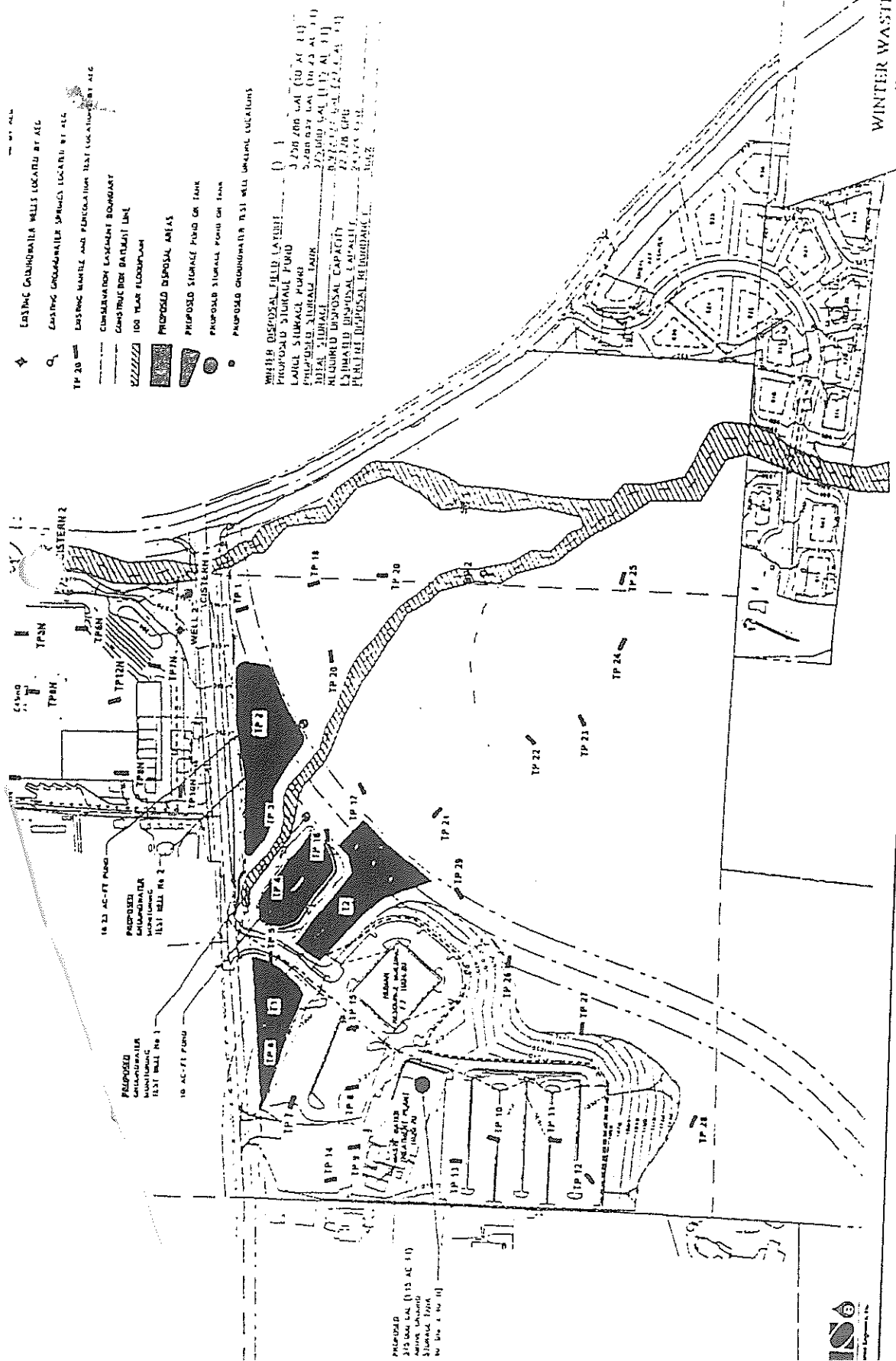
Alternative C

Alternative C has a projected wastewater flow that is the least of all the alternatives. Consequently, the winter flows can be stored in a seasonal storage pond and aboveground storage tank as shown in Figure 3. No disposal field is proposed for this alternative. Winter storage capacity is provided by the proposed 10.0 ac-ft storage pond and a 1.0 MG above ground storage tank located at the WWTP. The total proposed storage is 13.07 ac-ft (4,258,000 gal). The 1.0 MG above ground storage tank is proposed in the place of the 375,000 gal process tank at the WWTP. No redundant disposal field is required.

Alternative D

Alternative D has the Casino located on the 10 acre parcel north of Melody Road. The absence of a road south of Melody Road and the largest conservation area of any of the four alternatives make for a limited amount of available disposal area. Therefore, an increased amount of storage capacity is required to complement the disposal fields shown in Figure 4.

Winter storage capacity is provided by proposed 10.0, 7.6 and 16.23 ac-ft storage ponds and a 375,000 gal above ground storage tank. The total proposed storage is 27.4 ac-ft (8,922,000 gal). The 375,000 gal process tank at the WWTP is used.



APPENDIX 12

JAMUL GAMING FACILITY WASTEWATER TREATMENT AND RE-USE ANALYSIS

**JAMUL GAMING FACILITY
WASTEWATER TREATMENT AND
RE-USE ANALYSIS**

January 16, 2012

**Prepared by:
Dexter Wilson Engineering, Inc.
2234 Faraday Avenue
Carlsbad, CA 92008**

Job No. 536-006

DEXTER WILSON ENGINEERING, INC.

DEXTER S. WILSON, P.E.
ANDREW M. OVEN, P.E.
STEPHEN M. NIELSEN, P.E.
DIANE H. SHAUGHNESSY, P.E.
NATALIE J. FRASCHETTI, P.E.

January 16, 2012

536-006

San Dieguito Engineering, Inc.
4407 Manchester Avenue, Suite 105
Encinitas, CA 92024

Attention: Annie Aguilar, Project Manager

Subject: Jamul Gaming Facility Wastewater Analysis

Background

Jamul Indian Village/Lakes Entertainment, Inc. plans to move forward with design and construction of a gaming facility on an approximately 6.2 acre parcel owned in Federal Trust. The project may be developed as one of the alternatives that are described in more detail below. Water service is provided to the property by the Otay Water District. There are currently no sewer facilities in the area and the project will, therefore, need to provide a method for wastewater treatment and re-use/disposal at all stages of development.

Purpose

The purpose of this letter-report is to evaluate the wastewater treatment, effluent storage, and effluent re-use/disposal requirements for the proposed project and development alternatives. Options for providing service will be evaluated and consideration will be given to the most efficient way to complete the construction of facilities to support the proposed development.

Project Description

For the purposes of this letter, it is assumed that there would be three alternatives for project development, as described below.

Proposed Project. This project alternative would have 2,000 gaming machines, approximately 228,000 square feet of gross building area, five restaurants, and a 1,000 seat event center.

Alternative 1. This project alternative would have 1,000 gaming machines, approximately 119,000 square feet of gross building area, three restaurants and a 300 person event center.

Alternative 2. This project alternative would include 349 gaming machines in an approximately 17,500 square foot building. This facility would include a 59 person snack bar/café, but no restaurants.

Projected Sewer Flows

One of the key components of this study is to provide an estimate of projected sewer flows for the proposed project and project alternatives. To accomplish this we reviewed flow data from several existing gaming facilities. In reviewing this data, it became apparent that the flows from a facility will vary depending on a variety of factors including the number of gaming guests and amount of non-gaming area (restaurants, event center, etc.). It would also be expected that newer gaming facilities would generate lower flows than existing gaming facilities due to more stringent requirements for water conserving fixtures.

In reviewing data from four existing gaming facilities, we concluded that there is not a direct correlation between the number of gaming machines and the amount of flow generated. The data we reviewed showed a range of 22 gpd/machine to 59 gpd/machine. Not surprisingly, a better indicator of projected flows is the number of guests that visit a gaming facility. We found that the average flow varied from 7 gpd/guest to 10 gpd/guest. These flows include all activities at the facilities including restaurants.

For the purposes of this study, we believe the number of guests and amount of restaurant seating will be a good indicator of the amount of sewage flow generated and allow for comparison of different project alternatives. To estimate average flows in the report, the following flow factors have been used; these factors are based on empirical data obtained from four existing tribally owned gaming facilities, including two in Southern California.

| | |
|------------------------|-------------|
| Gaming facility guests | 7 gpd/guest |
| Restaurants | 15 gpd/seat |

The number of guests and restaurant seats for each alternative of the Jamul project has been assumed based on the review of data from four existing tribal gaming facilities, including two in Southern California. Table 1 summarizes the projected sewer flows for the proposed project and development alternatives. The treatment system for the project will need to consider the maximum daily flow that may occur on weekends or holidays and peak flows that may occur during the busiest hours of gaming facility operation. Table 1 lists the anticipated maximum day flow and peak flow based on factors of 1.5 and 2.0, respectively.

| <p align="center">TABLE 1 JAMUL GAMING FACILITY PROJECTED SEWAGE FLOWS</p> | | | | | |
|---|-----------------|------------------|-----------------------------|---------------------------|-----------------------|
| Description | Quantity | Unit Flow | Total Avg. Flow, gpd | Max. Day Flow, gpd | Peak Flow, gpd |
| Proposed Project | | | | | |
| Guests | 10,000 | 7 gpd/ea | 70,000 | --- | --- |
| Dining Seats | 840 | 15 gpd/seat | 12,600 | --- | --- |
| Total | | | 82,600 | 123,900 | 165,200 |
| Alternative 1 | | | | | |
| Guests | 5,000 | 7 gpd/ea | 35,000 | --- | --- |
| Dining Seats | 350 | 15 gpd/seat | 5,250 | --- | --- |
| Total | | | 40,250 | 60,375 | 80,500 |
| Alternative 2 | | | | | |
| Guests | 1,500 | 7 gpd/ea | 10,500 | --- | --- |
| Dining Seats | 59 | 15 gpd/seat | 885 | --- | --- |
| Total | | | 11,385 | 17,080 | 22,770 |

Potential for Re-use

All effluent generated by the onsite wastewater treatment plant will either need to be beneficially re-used or properly disposed of. Beneficial re-use that will be considered for this project includes dual plumbing for re-use in toilets, landscape irrigation, and cooling tower make-up water. The potential for re-use in toilets was estimated by reviewing preliminary fixture unit count data for each development alternative to determine approximately what percentage of flow is attributed to toilets and urinals. The landscape irrigation requirements were estimated based on preliminary landscape area designs. The Alternative 2 estimate is slightly higher due to the landscaping that can be incorporated into the at-grade parking lot. A green roof system will be incorporated into each of the project alternatives. This system will consist of planting and irrigating the top of roof structures in areas not occupied by facilities such as the central plant, power generator, chiller, etc. The irrigation application rate for green roof is assumed to be lower than that for other project landscaping since the usage will be limited to the amount of evapotranspiration that occurs from the soil and plants. Recycled water will not be allowed to percolate into the soil and runoff in the roof drains. Cooling tower make-up water was based on preliminary estimates from the building mechanical engineer and data from another tribally operated gaming facility in Southern California. Table 2 summarizes the potential for re-use of recycled water for the proposed project and development alternatives.

| TABLE 2 JAMUL GAMING FACILITY POTENTIAL RECYCLED WATER RE-USE SUMMARY | | |
|---|--|--------------------------|
| Description | Estimated Re-Use, gpd¹ | Comment |
| Proposed Project | | |
| Toilets/Urinals | 49,560 | 60% re-use |
| Landscaping | 1,230 | 20,000 SF @ 2,675 gpd/ac |
| Green Roof | 3,550 | 86,715 SF @ 1,785 gpd/ac |
| Cooling Towers | 20,000 | Prelim. Estimate |
| Total | 74,340 | |
| Alternative 1 | | |
| Toilets/Urinals | 24,150 | 60% re-use |
| Landscaping | 1,230 | 20,000 SF @ 2,675 gpd/ac |
| Green Roof | 2,210 | 53,989 SF @ 1,785 gpd/ac |
| Cooling Towers | 10,000 | Prelim. Estimate |
| Total | 37,590 | |

| TABLE 2 JAMUL GAMING FACILITY POTENTIAL RECYCLED WATER RE-USE SUMMARY | | |
|--|--|--------------------------|
| Description | Estimated Re-Use, gpd¹ | Comment |
| Alternative 2 | | |
| Toilets/Urinals | 6,800 | 60% re-use |
| Landscaping | 1,535 | 25,000 SF @ 2,675 gpd/ac |
| Green Roof | 420 | 10,826 SF @ 1,785 gpd/ac |
| Total | 8,755 | |

¹ Estimated re-use represents an annual average. See recycled water balance section for an evaluation of seasonal re-use.

Demineralization

The California State Water Resources Control Board has identified basin plan objectives for each of its nine regions. The Jamul property is within the San Diego Region 9 area, within Dulzura Hydrologic Basin 10.33. The basin quality objectives for the primary constituents in this area are summarized in Table 3.

| TABLE 3 SAN DIEGO RWQCB BASIN PLAN OBJECTIVE OTAY HYDROLOGIC UNIT - DULZURA SUBAREA 10.33 | | | | | | | |
|--|------|-----------------|------|------|------|-------|------|
| Constituent | | | | | | | |
| TDS | Cl | SO ₄ | Fe | Mn | B | Turb. | F |
| mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | NTU | mg/l |
| Inland Surface Water | | | | | | | |
| 500 | 250 | 250 | 0.3 | 0.05 | 0.75 | 20 | 1.0 |
| Ground Water | | | | | | | |
| 1,000 | 400 | 500 | 0.3 | 0.05 | 0.75 | 5 | 1.0 |

If recycled water effluent is to be discharged to the creek, a TDS requirement of 500 mg/l would apply, but if recycled water effluent was discharged by subsurface disposal, a TDS requirement of 1,000 mg/l would apply. The typical TDS of potable water delivered from the Otay Water District is 500 to 600 mg/l. After going through a use cycle, the recycled effluent TDS would be expected to increase to approximately 1,000 mg/l. Thus, to dispose of effluent to the creek would require a demineralization system to lower the TDS to 500 mg/l or less.

On the other hand, if recycled water is to be beneficially re-used, demineralization would be required to prevent the effluent from continually degrading through each use cycle. To be re-used in the toilets/urinals and cooling towers, we would recommend that a portion of the effluent be demineralized so that the blended effluent has a TDS of 500 mg/l.

Thus, it appears that demineralization will be required downstream of the treatment system regardless of the method selected for disposal. The most common method for demineralization is reverse osmosis (RO). One of the downsides of RO, however, is that it includes a 15 to 20 percent brine waste stream that must be hauled away. This can result in significant hauling costs. Another alternative for demineralization is electrodialysis reversal (EDR). This technology has similar capital and operating costs, but only has a 10 percent brine waste stream. For the purposes of this analysis, we are assuming that a portion of the treatment plant effluent will be routed through an EDR system such that the blended effluent has a TDS of 500 mg/l.

Wastewater Treatment

Given that there are no public sewer facilities in the vicinity of the project, the only two options for processing wastewater flow from the project would be hauling them to an offsite facility or onsite treatment and disposal.

Hauling. It is not uncommon in San Diego County to have septage haulers pump out holding tanks and take sewage to a dumping point in the City of San Diego collection system for conveyance to Point Loma where it is treated and discharged. This is particularly common when new wastewater treatment plants are constructed and initial flows are not adequate to allow the plant to be run effectively. For the Jamul site, hauling will be necessary for a brine waste stream from the demineralization system, but to haul all

wastewater flows would likely be cost prohibitive. To haul flows from the Alternative 2 gaming facility, for example, where the average flow is 11,385 gpd would require approximately 16 truck loads per week (5,000 gallons per truck load). At an approximate cost of \$500 per truck load, this would equate to an operating cost of \$416,000 per year. Costs for the Proposed Project and Alternative 1 gaming facilities would rise proportionally.

Treatment Plant. There are numerous technologies and manufacturers that could provide treatment plant equipment for the flow ranges required for the various alternatives of this project. This study does not include a detailed evaluation of all of the treatment alternatives, but does provide a brief discussion of a few treatment systems that could be used for this project. The major factors considered in the evaluation of equipment for this project includes the following:

- Initial Capital Cost
- Long term operating and maintenance cost
- Expandability
- Space requirements

In addition to the above, a number of regulatory requirements must be taken into consideration when considering treatment and disposal alternatives. These include the local basin plan objectives discussed previously and requirements of the United States Environmental Protection Agency (USEPA).

Regulatory Requirements. Since the treatment plant and effluent disposal are anticipated to be constructed on federal trust property, County of San Diego Building Department and California Title 22 regulations do not apply. Notwithstanding this, however, the proposed treatment system will be designed to produce effluent that meets Title 22 requirements. The property is within Region IX of the USEPA. The amount of involvement by the USEPA will depend largely on the method for effluent disposal. If, for example, the project will propose to discharge effluent to the creek, an NPDES permit would be required. This permit may be difficult to obtain in the San Diego Region and would include ongoing monitoring/reporting requirements that can be costly. Treatment alternatives that involve beneficial re-use, onsite subsurface disposal, and hauling of effluent would require coordination with the USEPA, but would not likely be subject to a USEPA permit.

Treatment Alternatives. The final selection of wastewater treatment equipment for this site will largely be dependent on space limitations and the ability of different treatment plant manufacturers to provide for expansion of the systems. The three systems that we believe are worth further evaluation include the following:

- Packaged Extended Air Activated Sludge Plant
- Packaged Membrane Bioreactor (MBR) Plant
- Custom Plant

The packaged plants would require input from the manufacturer on recommended sizing and expansion of the plant to most efficiently meet the requirements for the project. The custom plant option may be worth considering because industrial users often face similar space constraints and are able to minimize the plant footprint by constructing a plant with more vertical tankage.

Our recommendation is to use a packaged MBR plant. This type of plant can meet the space constraints and sizing requirements for the proposed project and project alternatives. An MBR treatment skid would include two treatment trains each sized for the design flows to provide full plant redundancy. The design of the treatment system and selection of equipment components will take into consideration the maximum daily flows and peak flows listed in Table 1. The MBR system, along with the other treatment system components, will produce an effluent that meets Title 22 standards.

Recycled Water Storage

While there is no agreed upon industry standard for the required volume of recycled water storage, many agencies plan on storage equivalent to two to three days of average flow. When the primary re-use is irrigation or spray field disposal it helps to have sufficient storage since irrigation can usually only occur during an 8 hour window. In the case of the Jamul Gaming Facility, however, a large percentage of the recycled water can be used in the toilets/urinals which is a round the clock use that is directly related to plant flow. A detailed monthly recycled water balance will need to be performed to determine the actual minimum storage required, but our experience is that two to three average day of storage would be conservative in this application.

There are several types of storage facilities including bolted steel tanks, welded steel tanks, pre-stressed concrete tanks, and cast-in-place concrete tanks that could be considered for this project. The most cost effective storage for the capacity required is expected to be bolted steel tanks, but due to space constraints a concrete structure incorporated into a parking garage may also be considered. Table 4 lists the recommended storage capacities and approximate dimensions if a bolted steel tank is utilized. The storage capacities in Table 4 are based on approximately 2.5 days of storage at average flows.

| TABLE 4 JAMUL GAMING FACILITY EFFLUENT STORAGE REQUIREMENTS | | |
|--|--------------------------------------|---|
| Size | Storage Required, gallons | Approximate Reservoir Dimensions |
| Proposed Project | 200,000 | 24' H x 38' Dia. |
| Alternative 1 | 100,000 | 24' H x 27' Dia. |
| Alternative2 | 25,000 | 16' H x 16' Dia. |

Recycled Water Balance

To better evaluate the best approach for effluent disposal, it is necessary to understand how the effluent disposal requirements will vary throughout the year. While beneficial re-use in the toilets can be expected to remain relatively constant throughout the year, re-use for irrigation and cooling tower make-up water will vary according to climate. A summary of assumptions for irrigation and cooling tower evaporation is provided below, followed by a monthly recycled water balance for the proposed project and project alternatives.

Monthly Irrigation Use. Table 2 provided the estimated average annual irrigation demand for the project and project alternatives. Table 5 summarizes the estimated irrigation usage by month. The seasonal usage is estimated from our experience in preparing recycled water balances for other treatment plants in San Diego County and is based on local rainfall patterns.

TABLE 5
JAMUL GAMING FACILITY
MONTHLY IRRIGATION USAGE SUMMARY

| Month | % of Yearly Usage | Irrigation Demand, MG | | |
|--------------|-------------------|-----------------------|---------------|---------------|
| | | Proposed Project | Alternative 1 | Alternative 2 |
| January | 2.0 | 0.035 | 0.025 | 0.014 |
| February | 5.0 | 0.087 | 0.063 | 0.036 |
| March | 5.0 | 0.087 | 0.063 | 0.036 |
| April | 6.0 | 0.105 | 0.075 | 0.043 |
| May | 7.0 | 0.122 | 0.088 | 0.050 |
| June | 10.0 | 0.175 | 0.126 | 0.071 |
| July | 14.0 | 0.244 | 0.176 | 0.100 |
| August | 16.0 | 0.279 | 0.201 | 0.114 |
| September | 13.0 | 0.227 | 0.163 | 0.093 |
| October | 12.0 | 0.209 | 0.151 | 0.086 |
| November | 6.0 | 0.105 | 0.075 | 0.043 |
| December | 4.0 | 0.070 | 0.050 | 0.029 |
| TOTAL | 100.0 | 1.745 | 1.256 | 0.714 |

Cooling Tower Evaporation. To estimate the amount of cooling tower evaporation that is projected on a monthly basis, we reviewed a year's worth of data from a tribal gaming facility in San Diego County that has meters on the cooling tower supply and blow-down lines so that the evaporative losses can be determined. We used this data in conjunction with the anticipated cooling tower evaporative losses from the building mechanical engineer for the Jamul Gaming Facility to come up with a monthly estimate. Table 6 provides a summary of monthly cooling tower evaporative losses for the Proposed Project and Alternative 1 facilities.

| <p style="text-align: center;">TABLE 6 JAMUL GAMING FACILITY PROJECTED COOLING TOWER EVAPORATIVE LOSSES</p> | | | |
|--|-------------------------|-----------------------------|----------------------|
| Month | % of Yearly Loss | Evaporative Loss, MG | |
| | | Proposed Project | Alternative 1 |
| January | 1.0 | 0.073 | 0.037 |
| February | 2.0 | 0.146 | 0.073 |
| March | 6.0 | 0.438 | 0.219 |
| April | 7.0 | 0.511 | 0.256 |
| May | 10.0 | 0.730 | 0.365 |
| June | 14.0 | 1.022 | 0.511 |
| July | 16.0 | 1.168 | 0.584 |
| August | 18.0 | 1.314 | 0.657 |
| September | 15.0 | 1.095 | 0.547 |
| October | 7.0 | 0.511 | 0.256 |
| November | 3.0 | 0.219 | 0.109 |
| December | 1.0 | 0.073 | 0.037 |
| TOTAL | 100.0 | 7.30 | 3.65 |

Proposed Project. Based on the information provided in this report, Table 7 summarizes the monthly recycled water balance for the Proposed Project facility. As shown, there will be no need for effluent disposal in the summer months and a maximum disposal requirement of approximately 25,000 gpd in the winter.

Alternative 1. Based on the information provided in this report, Table 8 summarizes the monthly recycled water balance for the Alternative 1 facility. As shown, there will be no need for effluent disposal in the summer months and a maximum disposal requirement of approximately 12,000 gpd in the winter.

Alternative 2. Based on the information provided in this report, Table 6 summarizes the monthly recycled water balance for the Alternative 2 facility. As shown, the effluent disposal requirements for excess recycled water range from approximately 225 gpd in the summer to approximately 3,500 gpd in the winter.

TABLE 7
JAMUL GAMING FACILITY PROPOSED PROJECT
MONTHLY RECYCLED WATER BALANCE

| Month | Total Sewage Flow, MG | Brine Stream Discharge, MG | Recycled Water Produced, MG | Gaming Facility Re-use, MG | Irrigation Demand, MG | Cooling Tower Evaporation, MG | Excess Recycled Water | |
|--------------|-----------------------|----------------------------|-----------------------------|----------------------------|-----------------------|-------------------------------|-----------------------|-----------|
| | | | | | | | MG | Avg., gpd |
| January | 2,561 | 0.153 | 2,408 | 1,536 | 0.035 | 0.073 | 0.764 | 24,645 |
| February | 2,313 | 0.139 | 2,174 | 1,388 | 0.087 | 0.146 | 0.553 | 19,750 |
| March | 2,561 | 0.153 | 2,408 | 1,536 | 0.087 | 0.438 | 0.347 | 11,194 |
| April | 2,478 | 0.149 | 2,329 | 1,487 | 0.105 | 0.511 | 0.226 | 7,533 |
| May | 2,561 | 0.153 | 2,408 | 1,536 | 0.122 | 0.730 | 0.020 | 645 |
| June | 2,478 | 0.149 | 2,329 | 1,487 | 0.175 | 1.022 | 0 | 0 |
| July | 2,561 | 0.153 | 2,408 | 1,536 | 0.244 | 1.168 | 0 | 0 |
| August | 2,561 | 0.153 | 2,408 | 1,536 | 0.279 | 1.314 | 0 | 0 |
| September | 2,478 | 0.149 | 2,329 | 1,487 | 0.227 | 1.095 | 0 | 0 |
| October | 2,561 | 0.153 | 2,408 | 1,536 | 0.209 | 0.511 | 0.152 | 4,809 |
| November | 2,478 | 0.149 | 2,329 | 1,487 | 0.105 | 0.219 | 0.518 | 17,267 |
| December | 2,561 | 0.153 | 2,408 | 1,536 | 0.070 | 0.073 | 0.729 | 23,516 |
| TOTAL | 30.15 | 1.807 | 28.34 | 18.09 | 1.745 | 7.30 | | |

TABLE 8
JAMUL GAMING FACILITY ALTERNATIVE 1
MONTHLY RECYCLED WATER BALANCE

| Month | Total Sewage Flow, MG | Brine Stream Discharge, MG | Recycled Water Produced, MG | Gaming Facility Re-use, MG | Irrigation Demand, MG | Cooling Tower Evaporation, MG | Excess Recycled Water | |
|--------------|-----------------------|----------------------------|-----------------------------|----------------------------|-----------------------|-------------------------------|-----------------------|-----------|
| | | | | | | | MG | Avg., gpd |
| January | 1.248 | 0.075 | 1.173 | 0.749 | 0.025 | 0.037 | 0.362 | 11,677 |
| February | 1.127 | 0.068 | 1.059 | 0.676 | 0.063 | 0.073 | 0.247 | 8,821 |
| March | 1.248 | 0.075 | 1.173 | 0.749 | 0.063 | 0.219 | 0.142 | 4,581 |
| April | 1.208 | 0.072 | 1.136 | 0.725 | 0.075 | 0.256 | 0.080 | 2,667 |
| May | 1.248 | 0.075 | 1.173 | 0.749 | 0.088 | 0.365 | 0 | 0 |
| June | 1.208 | 0.072 | 1.136 | 0.725 | 0.126 | 0.511 | 0 | 0 |
| July | 1.248 | 0.075 | 1.173 | 0.749 | 0.176 | 0.584 | 0 | 0 |
| August | 1.248 | 0.075 | 1.173 | 0.749 | 0.201 | 0.657 | 0 | 0 |
| September | 1.208 | 0.072 | 1.136 | 0.725 | 0.163 | 0.547 | 0 | 0 |
| October | 1.248 | 0.075 | 1.173 | 0.749 | 0.151 | 0.256 | 0.017 | 548 |
| November | 1.208 | 0.072 | 1.136 | 0.725 | 0.075 | 0.109 | 0.227 | 7,567 |
| December | 1.248 | 0.075 | 1.173 | 0.749 | 0.050 | 0.037 | 0.337 | 10,871 |
| TOTAL | 14.69 | 0.881 | 13.81 | 8.81 | 1.256 | 3.650 | | |

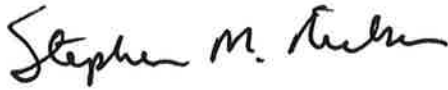
TABLE 9
JAMUL GAMING FACILITY ALTERNATIVE 2
MONTHLY RECYCLED WATER BALANCE

| Month | Total Sewage Flow, MG | Brine Stream Discharge, MG | Recycled Water Produced, MG | Gaming Facility Re-use, MG | Irrigation Demand, MG | Cooling Tower Evaporation, MG | Excess Recycled Water | |
|--------------|-----------------------|----------------------------|-----------------------------|----------------------------|-----------------------|-------------------------------|-----------------------|-----------|
| | | | | | | | MG | Avg., gpd |
| January | 0.353 | 0.021 | 0.332 | 0.211 | 0.014 | n/a | 0.107 | 3,452 |
| February | 0.319 | 0.019 | 0.300 | 0.190 | 0.036 | n/a | 0.074 | 2,643 |
| March | 0.353 | 0.021 | 0.332 | 0.211 | 0.036 | n/a | 0.085 | 2,742 |
| April | 0.342 | 0.020 | 0.322 | 0.204 | 0.043 | n/a | 0.075 | 2,500 |
| May | 0.353 | 0.021 | 0.332 | 0.211 | 0.050 | n/a | 0.071 | 2,290 |
| June | 0.342 | 0.020 | 0.322 | 0.204 | 0.071 | n/a | 0.047 | 1,567 |
| July | 0.353 | 0.021 | 0.332 | 0.211 | 0.100 | n/a | 0.021 | 677 |
| August | 0.353 | 0.021 | 0.332 | 0.211 | 0.114 | n/a | 0.007 | 226 |
| September | 0.342 | 0.020 | 0.322 | 0.204 | 0.093 | n/a | 0.025 | 833 |
| October | 0.353 | 0.021 | 0.332 | 0.211 | 0.086 | n/a | 0.035 | 1,129 |
| November | 0.342 | 0.020 | 0.322 | 0.204 | 0.043 | n/a | 0.075 | 2,500 |
| December | 0.353 | 0.021 | 0.332 | 0.211 | 0.029 | n/a | 0.092 | 2,968 |
| TOTAL | 4.158 | 0.246 | 3.912 | 2.483 | 0.714 | | 0.715 | |

Annie Aguilar
January 16, 2012
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We are available to discuss the contents of this letter-report at your convenience.

Dexter Wilson Engineering, Inc.



Stephen M. Nielsen, P.E.

SMN:ck



APPENDIX 13

JAMUL GAMING FACILITY FIRE PROTECTION PLAN



FIRE PROTECTION PLAN REPORT

JAMUL INDIAN VILLAGE GAMING PROJECT JAMUL, CA

PREPARED FOR:
RAYMOND HUNTER, CHAIRMAN
JAMUL INDIAN VILLAGE
JAMUL, CA

STEVE DAVIS, AIA, PRINCIPAL,
SUMMIT PROJECT MANAGEMENT
3975 LANDMARK STREET, SUITE 600
CULVER CITY, CA 90232
(310) 287-9988

PREPARED BY:
KENNETH G. LARSEN, CBO,
NATIONAL CODE CONSULTANTS
277 BONITA CANYON DRIVE
BONITA, CA 91902
(619) 743-1588

SEPTEMBER 30, 2011
REVISED: FEBRUARY 3, 2014



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EXECUTIVE SUMMARY

This Fire Protection Plan Report (FPP) has been developed to describe a coordinated/consolidated systems approach to the Fire Suppression and Fire Protection features for a Gaming Facility with unique fire protection aspects located on the Jamul Indian Village, Jamul, California. The primary goal of the Report is to detail how Fire Protection and Life-Safety features and any unique building elements afford the varied levels of protection contained in the ~~2010~~ 2013 Edition, California Building Standards Code, the 2011 San Diego County Consolidated Fire Code and the ~~2010~~ 2013 Editions of the CA Fire, Electrical Mechanical, Plumbing and Health Codes. Prescriptive Model Code Compliance requirements are intended to be used for the Project.

The Fire Protection Plan (FPP) addresses water supply, access, structural integrity and Fire-Resistive Building features, Fire protection Systems and equipment, impacts to emergency services, defensible space and vegetation management

The proposed Gaming Project demonstrates compliance, or offers the Same Practical Effect with applicable Fire Regulations including but not limited to; the ~~2010~~ 2013 Edition, California Fire Code, the ~~2010~~ 2013 Edition, California Building Code for Wildland/Urban Interface Building Standards. The comprehensive FPP and the Project are consistent with the California Code of Regulations (CCR) Title 24, Building and Fire Code Standards.

All applicable Fire Protection features required by each Code and any additional Fire Protection features which will be incorporated into the facility are described herein. A full description of the Fire Protection features provided in the complex and how those features interact with each other is provided.

This document will be used as a basis for architectural, civil as well as fire protection systems drawing preparation. These drawings will specifically detail the way in which the facility will comply with this document and the applicable Codes. Included in the Appendices' are Enhanced Fire-Resistive Construction Requirements, the Jamal Indian Village Tribal Council Resolution 2010-06 - Establishing the Jamal Tribal Fire Department and Resolution No. 2011-08 – Adoption of California Building Standards Code for the Proposed Project, the Alternative 1 Project Option and the Alternative 2 Project Option.

GENERAL PROJECT DESCRIPTION

The proposed Jamul Indian Village Gaming Project is intended to be developed on the Jamul Indian Village Reservation consists of the following ~~three~~ Project Options.

1. The Proposed Project: This Project Option will consist of approximately ~~228,000~~ 203,000 square feet, Two Story Gaming Project with approximately 73,000 square feet of Gaming Area constructed over an ~~multi-level~~ Eight Level Parking Structure.

~~**2. Alternative 1:** This Project Option will consist of 119,000 111,800 square feet two ~~three~~ story Gaming structure constructed over a multi-level parking structure. This Alternative 1 Project Option~~

DEFENSIBLE SPACE and VEGETATION MANAGMENT

Contained in the FPP are references to address the Defensible Space and Vegetation Management to provide optimum levels of Fire Protection for the Project. The FPP also includes a listing of Enhanced Fire-Resistive Construction Requirements for the Project. (Appendix A).

The Project Development Area is located between the adjacent grassland areas, located primarily to the South and the East of the Project's Improvement's within the Jamul Indian Village Reservation Parcel Boundaries. Contained in the FPP are the Defensible Space and Vegetation Management Plan to declare the Wildland separation distance equates as the Same Practical Effect (SPE) in lieu of the 100 foot of fuel treatment around the structures.

The Same Practical Effect (SPE) provisions are subject to review and Approval from the Director of Public Safety as the Authority Having Jurisdiction (AHJ) for the Project.

DESIGN TEAM

OWNER'S REPRESENTATIVE

Steve Davis, AIA, Principal
Summit Project Management
3975 Landmark Street, Suite 600
Culver City, CA 90232
(310) 287-9988
Email: sd@summit-pm.com

ARCHITECT

David G. Howryla, President
Marnell Architecture
222 Via Marnell Way
Las Vegas, Nevada
(702) 739-2000
Email: dhowryla@marnellcompanies.com

CIVIL ENGINEER

Annie Aguilar, Project Manager
San Dieguito Engineering, Inc.
4407 Manchester Avenue, Suite 100
Encinitas, CA 92024
(760) 753-5535
Email: aaguilar@sdeinc.com

WASTEWATER ENGINEER

Stephan M. Nielson, P.E.
Dexter Wilson Engineering, Inc
2234 Faraday Avenue
Carlsbad, CA 92008
(760) 438-0173
Email: steve@dwilsoneng.com

CODE CONSULTANT/BUILDING OFFICIAL

Kenneth G. Larsen, CBO, President & CEO,
National Code Consultants
277 Bonita Canyon Drive
Bonita, CA 91902
(619) 743-1588
E-Mail: nacode@usa.net

ENVIRONMENTAL CONSULTANT

Joe Broadhead, Principal
Environmental Data Systems
1007 7th Street, Suite 308
Sacramento, CA 95814
(916) 456-2603
Email: jbroadhead@edatcorp.net

MECHANICAL CONSULTANT

Karl Fish, President
MA Engineers
5160 Carroll Canyon Road, Suite 200
San Diego, CA 92121
(858) 200-0030
Email: kfish@ma-engt.com

APPLICABLE CODES AND STANDARDS

This outline documents the general fire protection design features based upon the Adoption by the California Building Standards Commission (CBSC) for construction standards set forth in the State of California. The applicable codes for Project include the following:

1. 2013 California Building Code (CBC) – Based on the 2012 Edition, International Building Code California State amendments.
2. 2013 California Fire Code (CFC) – Based on the 2012 Edition, International Fire Code (IFC) with California State amendments.
3. 2013 California Mechanical Code (CMC) – Based on the 2012 Edition, Uniform Mechanical Code (UMC) with California State amendments.
4. 2013 California Plumbing Code (CPC) – Based on the 2012 Edition, Uniform Plumbing Code (UPC) with California State amendments.
5. 2013 California Electrical Code (CEC) – Based on the 2011 Edition, National Electrical Code (NEC) with California State amendments.
6. 2011 Edition, San Diego County Consolidated Fire Code (CCFC)
7. NFPA Codes and Standards:
 - NFPA 13, Automatic Fire Sprinkler Systems
 - NFPA 10, Potable Fire Extinguishers
 - NFPA 14, Standpipe Systems
 - NFPA 20, Centrifugal Fire Pumps
 - NFPA 72, National Fire Alarm Standard
 - NFPA 110, Emergency and Standby Power Systems

This Fire Protection Plan (FPP) addresses the key features of these Codes, Standards and Guidelines. The intent of this document is to coordinate the Fire Protection approach between all design disciplines. Actual details of compliance will be further detailed in the construction documents and submittals by selected contractors.

1. SITE FIRE PROTECTION LIFE-SAFETY APPROACH

1.1. Property lines

- ~~1.1.1.~~ The Project Buildings are located ~~thirty (30)~~ twenty-four (24) feet or less from real property lines.

1.2. The Fire Department Access Road Design and Specifications will comply or exceed the 2013 Edition, CA Fire Code (CFC) Standards and the CCFC as follows:

- 1.2.1. The minimum dimensions along Fire Access Roads will be 25 feet (24 feet minimum width roadway) from back of curb to back of curb. Fire Access roads shall be designed for an inside Turning Radius of a minimum of 28 feet. The South and North Bridges will be one way traffic circulation only with a minimum 16 feet clear width on bridge due to Technical Infeasibility per the Environmental Report concerning Willow Creek.
- 1.2.2. Fire Access Roads will be designed and maintained to support the imposed loads of Fire Apparatus of not less than 75,000 and will be paved to provide all-weather driving capabilities. Roadways shall be designed to withstand actual Fire Apparatus loads and Ladder Truck Stabilizer Pads.
- 1.2.3. Dead-ends will not exceed 150 feet unless an approved area for turning around a Fire Apparatus is provided.
- 1.2.4. Slope Gradient for Fire Apparatus will not exceed 15%. The angle of departure and angle of approach of a Fire Access Road shall not exceed 12%.
- 1.2.5. All Fire Access Roads and areas adjacent to Buildings shall have a minimum vertical clearance of thirteen feet six inches (13'6").
- 1.2.6. The Project will have Primary and Secondary Fire Department/Emergency Services Access Roads. The Jamul Indian Village will maintain, modify and perform due diligence to eliminate Fire Hazards from combustible vegetation on each side of the Primary and Secondary Fire Access Routes consistent with the 2013 Edition, CFC, the CCFC and recognized industry fire access road standards.

1.3 Water Supply/Fire Flows:

- 1.3.1 Onsite Potable Water will be supplied by Otay Water District. Existing 12" water line is installed at Panhandle Drive to serve the Project. Otay Water District will provide the primary ~~and secondary~~ water supply for the Project.
- 1.3.2 Fire Flows: ~~The Alternative 2 Project Option will require a minimum of 4,500~~ 2500 Gallons per Minute (GPM) for a minimum Flow Duration of ~~Two (2)~~ Four (4) Hours. ~~The Alternative 1 Project Option will~~

~~require Fire Flows of 1500 2500 GPM for the Flow Duration of Three (3) Hours. The Proposed Project will require a minimum of 1500 2500 GPM for the Flow Duration of Four (4) Hours.~~

1.4 Onsite Fire Hydrants:

- 1.4.1 All portions of each building shall be within 150 feet of a Fire Hydrant. A minimum of ~~Three (3) onsite Fire Hydrants shall be provided for the Proposed Alternative 2 Project Option and a minimum of Four (4) onsite Fire Hydrants for the Proposed Project and the Alternative 1 Project Option.~~

1.5 Tribal Fire Department:

- 1.5.1 The Jamul Indian Village Tribal Council Approved the establishment of a Tribal Fire Department. On July, 7, 2010, the Jamul Indian Village Tribal Council Approved Resolution #2010-06 which is authorized under Public Law 93-638 to establish a Tribal Fire Department and a Tribal Community Emergency Response Team (CERT) to provide for an onsite Fire Protection Services, Emergency Medical Services and to prepare for Disaster Responses. (Appendix B)
- 1.5.2 The Jamul Indian Village Tribal Council has appointed selected individuals to perform the due diligence as the Jamul Fire Department Management Team, inclusive of Director of Public Safety and Emergency Services, Assistant Fire Chief/Fire Operations Officer, Fire Marshal, Tribal Emergency Management Coordinator and Community Liaison/Tribal CERT Coordinator.
- 1.5.3 The Jamul Indian Village Tribal Council adopted the National Incident Management System (NIMS) and directed staff to train all Team Members and/or Employees on NIMS Standards.
- 1.5.4 Fire Station: The Tribe will construct an onsite Fire Station to address the Fire Protection equipment and staffing needs for each of the three Project Options.
- 1.5.5 Fire Department Staffing:

The Jamul Indian Village Tribal Fire Department will be located onsite through the life of the Projects and during Casino operations. Fire Department Staffing will consist of a Director of Public Safety, responsible for management of the Department and a minimum of two FTE Fire-Fighters/Emergency Response members per shift. At the discretion of the Director of Public Safety, separate company shifts, (either three or four shifts) would be implemented throughout the life-cycles of the Projects during construction and after Occupancy

Clearances, on a continuous full time company levels for Casino operations.

1.5.6 Fire Department Equipment & Staffing

The Jamul Indian Village Fire Department will necessitate a minimum of the following Equipment & Staffing listing per ~~each of the three Gaming Project Options.~~ Project Scope.

A. ~~The Alternative 2 Option:~~

This ~~Gaming Project Option~~ will require a minimum of two engines, staffed with three personnel; a Captain, an Engineer and a Fire-Fighter. Subject to review by the Director of Public Safety (AHJ) a four person engine Company may be preferred for the Project. Staffing estimate would be 12 -14 personnel. Equipment maintenance could be contracted out with adjacent Fire District, Fire Department or Certified Mechanic.

B. ~~The Alternative 1 Option:~~

This ~~Gaming Project Option~~ will necessitate a 74' -105' Ladder Truck and two engines and a "Mini-Pumper" Fire Truck for Incident Responses in the Parking Garage. Staffing allocation would be 24-26 personnel.

C. ~~The Proposed Project:~~

The ~~Proposed Project~~ will require ~~the same~~ Fire Department Equipment & Staffing as ~~the Alternative 1 Project~~ identified in Sections A, B & C.

1.5.7 Fire Department Training Standards:

The Jamul Indian Village Fire Department intends to participate in the Mutual Aid Program, the Fire Department Personnel will maintain one Fire Response unit with a Fire-Fighter/EMT at all times. Fire Department Personnel will be trained on the following areas, inclusive of, under the Direction of the Tribal Fire Chief, will prepare a "Shelter-in-Place" Training Program to accommodate area residents whom may be displaced during natural or man-made disasters:

1. Hazardous Materials Awareness and Operations (Sara Title III, CFR: 1910.120)
2. Permit Required Confined Space (CFR: 1910:146)
3. Affirmative Action Training (Title VII; 1964 Civil Rights)
4. Injury and Illness Prevention Training (CCR: 3203)
5. Personal Selective Equipment (CCR: 3401 (b)(6))

6. SCBA: CCR 3409, ANSI Z88.5.8.3 CCR: 5144 ©
7. SCBA Ability Training (ANSI Z88. 5.8.3)
8. Wildland/Fire Shelters (CCR: 3410(g), NFPA 295 3-2)
9. Multi-Casualty Incident Training (H&S Code 1797.151)
10. Triage (H&S Code 1798.170)
11. Vehicle Extraction (CCR: 100075)
12. Cardiopulmonary Resuscitation (CCR: 100025, H&S Code 1797.182, PC: 13518)
13. Sudden Infant Death Syndrome (SB 1067)
14. Bloodborne Pathogens (CCR: 5193(e)(5))
15. Incident Command System (SB 1841-1993, Firescope Act)
16. NIMS 700
17. Standardized Emergency Systems (SEMS) GC: 8707)
18. CA DMV Class B Driving Program for Fire Apparatus Engineers and Designated Drivers (CA DMV DL 170)

Additional areas for Training Standards:

19. Electric Vehicle Response
20. Swift Water Emergency Rescues
21. Incident Command System (ICS)
22. High Rise Response and ICS
23. Emergency Vehicle Operations Course.
24. Cal-Fire Fighting Training Curriculum

All Jamul Indian Village Fire Department suppression personnel will be required to perform a minimum of twenty hours (20) per month of Training. The Training can be structured as either classroom or operations drills. The Captains will be responsible to ensure the Training hours are recorded. The AHJ may augment the minimum hours of Training will either specialized classes and/or designated Training at Regional Training Centers.

1.5.8 Fire Department Mutual Aid/Emergency Medical Services

The Jamul Indian Village Fire Department will offer to engage into a Mutual Aid Agreement based on the qualifications of the Department's Personnel and Equipment with local Agencies, inclusive of San Miguel Consolidated Fire Protection District, the US Fish and Wildlife Fire, area Tribal Fire Agencies, the US Dept of Forestry, Cal-Fire, and shared resources from the contracted Emergency Dispatch Center, or a

contracted Regional Tribal Emergency Dispatch Center. The Jamul Indian Village will either provide their own Ambulance Service or contract to an outside Agency (AMR) or another Agency (Sycuan, Pala, Mercy, etc.). An Advanced Life Support (ALS) or Basic Life Support (BLS) Ambulance will be assigned onsite for the Proposed Project.

1.6 Defensible Space and Vegetation Management

- 1.6.1 The Project Development Area is located adjacent to Wildland Areas which consists of Short Grass (less than 12in tall Grass) with small and medium height Coastal Sage Brush spread intermittently on varied intervals. Defensive Space criteria mandates that either a one hundred foot barrier exists between Structures and the Wildland Areas requiring the 100 ft Defensible Space will be Mitigated and compliant utilizing Mitigation Measures involving the Same Practical Effect (SPE) determinations as Approved by the Authority Having Jurisdiction (AHJ).
- 1.6.2 Specific Mitigation Measures and Design Considerations: Each of the Project's structures will be constructed to Enhanced Fire – Resistive Building Requirements. All exterior architectural components shall be designed and constructed to Enhanced Fire-Resistive Building Materials. Each of the Projects will be equipped with Automatic Fire Sprinklers designed and installed per NFPA 13-10. The multi-level parking structures will be constructed of Concrete, Masonry and Steel Building Elements, and equipped with Automatic Fire Sprinklers (NFPA 13-10 and Wet-Standpipe Systems installed per NFPA 14-10. All exterior Glazing materials exposed to the Defensible Space will be multi-layered panels with one panel required to be tempered glazing.
- 1.6.3 One Hundred-foot Fuel Modifications Zones (FMZ): In the cases where the 100 ft Fuel Modification Zone (FMZ) requirement cannot be met due to Property Boundary limitations, Mitigation Measures qualifying as Same Practical Effect (SPE) may be implemented. This is consistent with the Accepted Engineering Practices for Wildland and Structures Interface. Short Grass (less than 12in. tall) which exists at the southern and Eastern Boundaries of the Project. These Parcels are Off-Reservation of which the Jamul Tribe has no direct control to mitigate the Short Grass growth.

As such, due to the Short Grass Fuel Loads that in the event of a Wildland Fire, ~~it is calculated~~ Fire Behavior Calculations were derived from the Standard National Fuel Model, FM-1 Short Grass utilizing a wind speed 41 mph will have a Rate of Spread of 732 ft/min, a Fire Line intensity of 1,415 btu/sec resulting that the anticipated Flame Lengths would not exceed Thirteen Feet (12' 7") at a wind speed of 12-MPH, inclusive of a worst case scenario is a Santa Ana wind conditions at

excess of 41 MPH will still not exceed Thirteen Feet (12' 7") in anticipated Flame Length As designed, the Project's exterior wall would not create a negative impact for the Project's Exterior Building Envelope and a threat to the Health Safety & General Welfare of the Building's Occupants or to Emergency Services First Responders. The Jamul Indian Village Fire Department will serve as first responders with a response time in less than two minutes. Jamul Tribal Fire-Fighters will be trained on NWCG Red Carded for Wildland Fire Control. Hence, the Same Practical Effect (SPE) is concluded due to the adjacent Short Grass and minimum Sage Brush Fuel Loads. It is recommended to the AHJ to Approve the Same Practical Effect (SPE) in lieu of designing the Project with the 100 ft. Defensible Space requirements.

- 1.6.4 Onsite Landscaping, Green Roof Plantings: All Onsite Landscaping will be designed and consistent with the County of San Diego Acceptable Plant Listings for Fire Prone Areas. All Onsite Plants will be specified as species which will not advance Fire or threaten the Structure.

2. GENERAL FIRE-RESISTIVE CONSTRUCTION ASPECTS

2.1. General Construction Classification:

- 2.1.1. ~~Each of the three Gaming Project Option's~~ The Project Building will be a minimum of Type I-A Fire-Resistive Construction. The multi-level parking garages will be constructed and classified as Type I-A construction.

2.2. The fire resistance rating of the building elements (as defined in CBC Table 601) is as follows::

GIVEN: Type I-A Construction for the Proposed Project, Alternative1 & Alternative 2 Option

| Building Element | Fire Resistance Rating | Construction to Comply with CBC |
|---|---|---------------------------------|
| Structural Frame | 3 Hour | Table 601, Section 602 |
| Exterior Walls: < 30 ft to property line | 2 Hour | Table 602, Section 602 |
| Bearing Walls: Interior Exterior | 3 Hour 3 Hour | Table 601 ,Section 602 |
| Non-bearing Walls | None (or as required by other sections of the code) | N/A |

| Building Element | Fire Resistance Rating | Construction to Comply with CBC |
|--|---|--|
| Floor (including supporting members and joists) | 2 Hours – NOTE: 3 Hours Separation per CBC Section 509.2 | Section 712, 509.2, Table 601, Section 602 |
| Roof <u>Assembly</u> (including supporting members and joists) | 1 1/2 hours | Table 601, Chapter 15 |

2.2.1. The Structural Frame will be a minimum of 3-Hour Fire-Resistive Construction per CBC Table 601, except that portions of the structural frame and bearing walls that support the roof only may be of 2-hour fire-resistive construction.

2.2.1.1. The Secondary Members, which include members that have no direct connections to the columns and bracing members that are not designed to carry gravity loads, are not a part of the structural frame. Such secondary members will have the fire-resistance rating required for the corresponding floor/roof assembly.

2.2.1.2. All Structural Members that support more than 2 floors or more than one roof or floor will be protected individually on all sides (Section 704.2). Column protection is required to be extended through the ceiling

2.2.1.3. The required Fire-Resistance Rating for seismic isolation system components is the same as required for the column, wall or other structural element in which it is installed and is required to comply with Section 704.12.

2.3. Exterior walls

2.3.1. Exterior walls and exit enclosures will comply with the requirements of CBC Section 705 per Section 1022.1.

2.3.2. All Openings into the building will be required to be protected per the area and distance limitations of CBC Section 705.

2.4. Roof Construction

2.4.1. Roof coverings will be minimum Class A materials per CBC Table 1505.1.

3. OCCUPANCY CLASSIFICATION

3.1. The Gaming Structure and Parking Garage will be a mixed-use building. Primary Occupancy Classification is Group A-2.

- 3.1.1. Dining Rooms/Restaurants: A-2
- 3.1.2. Gaming: Floor :~~A-3~~ A-2
- 3.1.3. Parking Garage: S-2
- 3.2. Group B:
 - 3.2.1. Offices and Back-of House Uses.
- 3.3. Group F:
 - 3.3.1. Fire Pump room/mechanical and electrical equipment rooms/engineering rooms:
 - 3.3.2. Kitchens: F-2
- 3.4. Group M: Retail Stores
- 3.5. Group S-1: Moderate Hazard Storage Rooms.

4. FIRE RESISTIVE SEPARATIONS

4.1. Occupancy Separations

- 4.1.1. Nonseparated use provisions will be used in accordance with CBC Section 508.3.2. Therefore, occupancy separations and incidental use separations are not required and will not be provided.

4.2. Other Separations

| Separation Type | Fire Resistance Rating | Wall Type | CBC Section |
|--|--|---|------------------------------|
| Corridor | N/A – Project Building are Auto. Sprinkler Systems per NFPA 13 | Fire partition (Sec. 709) | Table 1018.1; Section 1018. |
| Garage Separation | 3 hour | Horizontal & Vertical | Section 509 |
| Shafts | 2 hour for three or more floors | Fire Barrier & Horizontal Assembly (Sec. 708 & 712) | Section 708 |
| Trash/Laundry Chute Access & Termination Rooms | N/A | Fire barrier (Sec. 707) | Section 708.13.3 708.13.4 |
| Stairs | 1 hour, connecting 3 stories or less 2 hour, connecting 4 or more stories | Fire barrier (Sec. 707) | Section 1022.1 |

| Separation Type | Fire Resistance Rating | Wall Type | CBC Section |
|---------------------------------|---|---------------------------|---|
| Pressurized Enclosure Vestibule | 2 hour NOTE: High Rise Provision >75' above Fire department Access | Fire barrier (Sec. 707) | Section 1022.9 |
| Exit Passageway | 1 hour, but not less than that required for the connecting enclosure | Fire barrier (Sec. 707) | Section 1023.3 |
| Horizontal Exit | 2 hour | Fire barrier (Sec. 707) | Section 1025.2 |
| Elevator Lobbies | Equal to the corridor rating provided. | Fire partition (Sec. 709) | Section 708.14.1 |
| Elevator Machine Room | 2 hour | Fire barrier (Sec. 707) | Section 3006.4 |
| Smoke Zone (smoke control) | 1 hour | Smoke barrier (Sec. 710) | Section 710.3 |
| Fire Pump Room | 2 hour | Fire barrier (Sec. 707) | Section 913. NFPA 20 |
| Fire Command Center (FCC) | 1 hour | Fire barrier (Sec. 707) | Section 911.1 |
| Emergency Electrical Room | 1 hour | Fire barrier (Sec. 707) | CBC Chapter 27 & CA Electrical Code – Emergency Onsite Power Generator. |

- 4.2.1. Elevator lobbies, where required, will be constructed of non-combustible, 1-hour rated fire partitions with smoke- and draft-control assemblies per Exception 5 to CBC Section 708.14.1.
- 4.2.1.1. Elevator lobbies opening into a fire-resistance rated corridor will be 1-hour fire-resistance rated fire partitions per CBC Section 708.14.1. Openings into the lobby will be 20-minute smoke- and draft-control assemblies per CBC Table 715.4.
- 4.2.1.2. Smoke partitions are permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with CBC Section 903.3.1.1.

- 4.2.1.3. Elevator lobbies are not required for elevators serving three stories or fewer.
- 4.2.1.4. Elevator lobbies are not required on the Ground Level per Exception No. 1 to CBC Section 708.14.1.
- 4.2.1.5. Smoke Management Zones; N/A at this time.

4.3. Opening Protection

- 4.3.1. The Exterior Wall Openings are allowed to be non-rated and of an unlimited amount since the building is fully-sprinklered. For Exterior Wall Openings at Ten feet or greater, premised on area of openings may be either Protected (45 minutes) or non-rated premised on application of CBC Table 705.8. Exception: Refer to Appendix A for Wildland Interface Exterior Wall Openings.

4.3.2. Penetrations:

- 4.3.2.1. All penetrations will be properly sealed and protected. Through-penetrations and membrane penetrations will be protected as required by CBC Section 713.3 and 713.4.
- 4.3.2.2. Penetrations in smoke barriers: N/A
- 4.3.2.3. Through-penetrations: An approved fire-stop system with an F-rating at least equivalent to the assembly being penetrated will be used.
- 4.3.2.4. Membrane penetrations: Recessed fixtures will be installed such that the fire resistance of the assembly is not compromised.

4.3.3. Doors

- 4.3.3.1. Fire doors will be tested in accordance with NFPA 252 or UL 10C.
- 4.3.3.2. Fire door fire-protection ratings will be (Table 715.4) as follows:

| Type and Rating of Assembly | Door Fire Resistance Rating |
|---|---|
| 3-hour fire walls and fire barriers | 3 hour |
| 2-hour fire walls and fire barriers | 1½ hour |
| 2-hour shaft or exit enclosures, Including exit passageways | 1½-hour smoke- and draft-control assemblies |
| 1-hour shaft or exit enclosures, Including exit passageways | 1-hour smoke- and draft-control assemblies |
| Other 1-hour fire barriers | ¾-hour |

| Type and Rating of Assembly | Door Fire Resistance Rating |
|---|---|
| 1 hour corridor walls, designated smoke barrier walls, and elevator lobbies | 20-minute smoke- and draft-control assemblies |
| Other 1-hour fire partitions | ¾-hour |
| Vestibule to stairwell | 20-minute smoke- and draft-control assemblies |

4.3.3.3. Rated doors in corridors and smoke barriers are required to be smoke and draft control assemblies tested in accordance with UL 1784. The letter "S" will be shown on the label (Section 715.4.5.3)

4.3.3.4. Because the building is fully sprinklered, none of the fire doors are required to have a maximum transmitted temperature end point (Section 715.4.4, Exception).

4.3.4. The fire resistance rating of windows in fire rated assemblies is to be in accordance with Table 715.5.

4.3.5. Joint Systems

4.3.5.1. Joints in between fire rated assemblies are required to be protected by an approved fire resistant joint system. This system is intended to block the passage of fire.

4.3.5.2. The joint created at the intersection of the curtain wall and the floor is to be sealed with an approved material or system. The system is intended to prevent the passage of flame and hot gases.

4.3.6. Duct & Air Transfer Openings (Section ~~712~~ (716) and ~~716~~ 717)

4.3.6.1. Dampers are required to be provided with an access panel.

4.3.6.2. Since fans will be in operation in the system during a fire, dampers are required to be listed for use in a dynamic system.

4.3.6.3. When part of the smoke control system, smoke dampers and Combinations Fire & Smoke Dampers (CFSD) will be monitored by the fire alarm system for their appropriate position.

4.3.6.4. Required at the following:

| Type of Assembly | Required Protection |
|------------------|---------------------|
| Fire wall | Fire damper. |

| Type of Assembly | Required Protection |
|--|--|
| Fire barrier | Fire damper. Do not penetrate exit enclosures and exit passageways. <i>Exception:</i> penetration of 1 hour rated walls by a ducted HVAC system of at least 26 gage sheet steel. |
| Shaft enclosure | Fire/Smoke damper. |
| Fire partition | Fire damper. |
| Corridors | Smoke damper. (Fire damper also required if the corridor is rated.) |
| Floor penetration, when not in a shaft | Fire/Smoke damper |

4.3.6.5. Fire Dampers:

- 4.3.6.5.1. 1½ hr rated damper is required in a wall rated less than 3 hours.
- 4.3.6.5.2. 3 hr rated damper is required in a wall rated 3 hr or more.
- 4.3.6.5.3. If a fire damper interferes with the operation of the smoke control system, use an approved alternate protection (716.2.1)
- 4.3.6.5.4. Fire dampers are not required when steel exhaust sub-ducts are provided or when ducts are part of an approved smoke control system. See Section 716.5.3, Exception #1.
- 4.3.6.5.5. Fire dampers will comply with the requirements of UL555. Only fire dampers labeled for use in dynamic systems will be installed in heating, ventilation and air-conditioning systems designed to operate with fans on during a fire.

4.3.6.6. Smoke Dampers:

- 4.3.6.6.1. Leakage not less than Class II.
- 4.3.6.6.2. Elevated temperature rated not less than 250°F. A higher temperature rating can be justified if needed as part of a smoke control system (where a higher smoke temperature is anticipated).
- 4.3.6.6.3. Smoke dampers will close on activation of a listed smoke detector as outlined in Section 4.3.6.9.4 of this report.

- 4.3.6.7. Where both a fire and a smoke damper are required, combination fire/smoke dampers (CFSD) can be used.
- 4.3.6.8. Damper Operation
 - 4.3.6.8.1. Dampers will fail to the closed position, unless otherwise required as a part of a programmed smoke management sequence.
 - 4.3.6.8.2. Smoke damper, fire damper, and CFSDs will close upon activation of specific fire alarm initiating devices within the zone of origin, as well as fixed temperature fusible link and dedicated duct mounted smoke detector, except where programmed to remain open for proper functioning of the mechanical smoke management systems.
 - 4.3.6.8.3. When part of the smoke control system, dampers will be monitored by the fire alarm system for their appropriate position, as described in the Smoke Management System section of this report.
- 4.3.6.9. Combination Fire and Smoke Dampers (CFSD)
 - 4.3.6.9.1. CFSD will have a minimum leakage rating of Class II and a minimum elevated temperature rating of 250°F per CBC Section 716.3.2.
 - 4.3.6.9.2. CFSD will have a minimum leakage rating of Class II and a minimum elevated temperature rating of 350°F when part of a smoke control system.
 - 4.3.6.9.3. CFSD and smoke damper actuation methods.
 - 4.3.6.9.4. The CFSD and smoke damper will close upon actuation of a listed smoke detector or detectors installed in accordance with CBC Section 716.3.2.1 and one of the following methods, as applicable.
- 4.3.6.10. Where a damper is installed within a duct, a smoke detector will be installed in the duct within 5 feet of the damper with no air outlets or inlets between the detector and the damper. The detector will be listed for the air velocity, temperature and humidity anticipated at the point where it is installed. Other than in mechanical smoke control systems, dampers will be closed upon fan shutdown where local smoke detectors require a minimum velocity to operate.

- 4.3.6.11. Where a damper is installed above smoke barrier doors in a smoke barrier, a spot-type detector listed for releasing service will be installed on either side of the smoke barrier door opening.
- 4.3.6.12. Where a damper is installed within an unducted opening in a wall, a spot-type detector listed for releasing service will be installed within 5 feet horizontally of the damper.
- 4.3.6.13. Where a damper is installed in a corridor wall or ceiling, the damper will be permitted to be controlled by a smoke detection system installed in the corridor.
- 4.3.6.14. Where a total-coverage smoke detector system is provided within areas served by a heating, ventilation and air-conditioning (HVAC) system, dampers shall be permitted to be controlled by the smoke detection system.

5. INTERIOR WALL, CEILING AND FLOOR FINISHES:

- 5.1. Wall and ceiling flame spread allowance with automatic sprinklers throughout (per Table 803.9). Classifications are in accordance with ASTM E84.
 - 5.1.1. Exit enclosures and passageways (all occupancies): Class B.
 - 5.1.2. Corridors: Class C.
 - 5.1.3. Corridors – all other occupancies: Class B.
 - 5.1.4. Rooms and enclosed spaces (all occupancies): Class C.
 - 5.1.5. Any space classified as an atrium: Class B.
- 5.2. Wall and ceiling finishes other than textiles can also be tested in accordance with NFPA 286 and comply with the acceptance criteria in Section 803.1.2.1.
- 5.3. Interior finish materials are to be fastened in a manner such that the materials will not become readily detached when subject to room temperatures of 200°F for not less than 30 minutes.
- 5.4. For application of interior finish to wall ceilings or structural elements having a fire resistance rating, see Section 803 1.4.
- 5.5. Insulation will have a flame spread in accordance with Section 719.3 in an exposed or concealed installation insulation (including insulation covering pipe or tubing) will have a flame spread index of not more than 25 and a smoke developed index of not more than 450.
- 5.6. Smoke-developed index of all ceiling and wall finish materials will not exceed 450.
- 5.7. Textiles on walls or ceilings will have a Class A flame spread index and will be fully protected by automatic fire sprinklers. Alternatively, the materials will meet the

criteria of the NFPA 286 room corner test, or Method B protocol of the NFPA 265 room corner test (Section 803.6). Expanded vinyl wall coverings will comply with these requirements for textile wall coverings (Section 803.7)

- 5.8. Floor finishes will comply with Section 804. This does not include the following finishes: wood, vinyl, linoleum or terrazzo and resilient floor covering materials not composed of fibers. Since the building is sprinklered, the floor finishes need only comply with the DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630).
- 5.9. Decorative materials and trim will be provided in accordance with Section 806.
 - 5.9.1. The amount of non-combustible decorative material is not limited.
 - 5.9.2. Decorative materials meeting the flame propagation criteria of NFPA 701 will not exceed 10% of the aggregate area of walls and ceilings. Testing and approval of these materials is to be by an approved agency.
 - 5.9.3. If covering more than 10%, the materials are required to be considered interior finish.
- 5.10. Imitation leather or other material consisting of or coated with a pyroxylin or similarly hazardous base is not allowed in Group A occupancies.
- 5.11. Interior trim, other than foam plastic, will have a minimum Class C flame spread and smoke-developed index and will not exceed 10% of the aggregate wall or ceiling area in which it is located (excluding handrails and guardrails).
- 5.12. Foam plastics will not be used as interior finish or trim except as provided for in Sections 2603.9 and 2604.
 - 5.12.1. All foam plastic requires a thermal barrier between it and the interior of the building (Section 2603.4), except when used as interior trim in accordance with Section 2604.
 - 5.12.2. Foam plastics are acceptable where tested in accordance with NFPA 286 (with the acceptance criteria of Section 803.2), FM 4880, UL 1040 or UL 1715. They must also meet the flame spread requirements of Chapter 8.
 - 5.12.3. Foam plastics used as interior trim are required to comply with Section 2604.2. The amount is not to exceed 10% of the aggregate wall and ceiling area of the room.
 - 5.12.4. Plastic veneer will comply with the requirements of SNBC Chapter 8.
- 5.13. Light-transmitting plastic used as interior finish or decorative materials will be compliant with Sections 2606, 2607, 2608 and 2611.

6. MEANS OF EGRESS

- 6.1. Occupant load factors for the expected occupancies:

| Occupancy | Occupant Load Factor |
|---|--|
| Mechanical/Electrical equipment rooms/storage | 300 ft ² per person (gross) |
| Casino Floor | 11 ft per person (gross) |
| Kitchens | 200 ft ² per person (gross) |
| Offices | 100 ft ² per person (gross) |
| BOH Locker Rooms | 50 ft ² per person (gross) |
| Lounge/Bar/Dining Rooms | 15 ft ² per person (net) |

- 6.2. Egress from a space will not pass through intervening rooms except where intervening rooms are accessory, not a Group H occupancy, and provide a discernable path of travel to an exit per CBC Section 1014.2. Egress within residential units will not pass through other sleeping areas, toilet rooms or bathrooms.
- 6.3. Travel distance to an exit (exterior exit door, exit passageway or enclosed stair) will not exceed 250 feet per CBC Table 1016.1.
- 6.4. Common path of travel will not exceed 75 feet, or 100 feet in Group B, F, and S occupancies per CBC Section 1014.3.
- 6.5. Where more than one exit or exit access doorway is required, the exit access will be arranged such that there are no dead ends in corridors greater than 20 feet in length or when the length of the dead-end corridor will be less than 2.5 times the least width of the corridor per CBC Section 1018.4. Dead ends in corridors serving Group B and F occupancies may be extended to 50 feet.
- 6.6. Number of means of egress
- 6.6.1. Two means of egress will be provided for spaces as required by CBC Table 1015.1. For occupant loads greater than 1000, a minimum of four exits required. In particular, two means of egress will be provided from Group A, B and F spaces with an occupant load greater than 49, Group S spaces with an occupant load greater than 29.
- 6.6.2. Boiler rooms which exceed 500 feet of floor area and house equipment having an input of more than 400,000 Btuh will be of 1-hour fire-resistive construction and will have two means of egress per CBC Section 1015.3.
- 6.7. Separation of exits
- 6.7.1. Spaces that require access to more than one means of egress will have two exits separated by more than one-third the diagonal distance of the space per CBC Section 1015.2.

6.8. Stairs

- 6.8.1. Enclosed stairs will discharge directly to the exterior of the building at grade or at a point providing direct access to grade, or will continue through a 2-hour rated horizontal extension of the stair enclosure leading to the exterior at grade. When the stair is pressurized the horizontal extension will also be pressurized.
- 6.8.2. Per the CBC, in the event occupied floors are more than 75 feet above the lowest level of fire department access, all enclosed exit stairs will be pressurized as required by CBC Section 1022.9 Pressurized stair enclosures will contain pressurized entrance vestibules.
- 6.8.3. The 2-hour wall construction for the exit enclosure will include both the stair and the vestibule as a single element, with a 1½-hour door at the vestibule/corridor interface. The stair to vestibule construction will also be 2-hour wall construction with a 20-minute door at the vestibule/stair interface. Pressurized stairs are identified on the Architectural Plan.

6.9. Doors

- 6.9.1. Egress doors, including roof level stair entrances, will be operable from the egress side without the use of a key or special knowledge or effort.
- 6.9.2. Egress doors will swing in the direction of exit travel when serving an occupant load of 50 or more per CBC Section 1008.1.2.
- 6.9.3. Neither stair nor stair vestibule doors will be locked to restrict access from the stair into any residential unit corridor.
- 6.9.4. Fire doors will meet the requirements for rate of temperature rise and positive pressure, as may apply.

6.10. Exit Signs and Means of Egress Illumination

- 6.10.1. Illuminated exit signs will be provided at exit doors and where otherwise necessary to clearly indicate the direction of exit travel when two or more exits are required per CBC Section 1011.1. No point in a corridor will be more than 100 feet from the nearest visible exit sign.
- 6.10.2. Tactile exit signs shall be provided per CBC Section 1011.3 and will be located at:
 - 6.10.2.1. Grade level exterior exit doors.
 - 6.10.2.2. Stairwell exit doors.
 - 6.10.2.3. Exit access doors from rooms that require visual exit signs.
 - 6.10.2.4. Horizontal exit doors.
- 6.10.3. Interior corridors serving meeting rooms and lounge areas occupancies as required by the code will have internally illuminated low level exit

signs, the bottom of which will not be less than six or more than eight inches above finished floor per CBC Section 1011.6. When installed adjacent to exit doors, they will not exceed 4 inches from the door frame.

6.10.3.1. Low-level exit signs may be excluded if path marking is installed at the floor level or no higher than 8 inches above the floor level. Path marking will be continuous, except as interrupted by doors, corridors or similar architectural features.

6.10.4. Normal power for exit signage and means of egress illumination will be supplied from the building wiring. Emergency power will be provided by the emergency generator.

6.10.5. Emergency illumination of at least one footcandle will be provided at the walking surface level per CBC Section 1006.2.

6.11. Exit enclosures will not have any penetrations into the enclosure other than exit doors from normally occupied spaces. Piping and conduit may penetrate the stair but only to serve systems that are within the stair. Such penetrations will be protected by a listed through penetration firestop system of the appropriate rating.

7. EMERGENCY SIGNAGE

7.1. A sign stating "IN FIRE EMERGENCY, DO NOT USE ELEVATOR. USE EXIT STAIRS." will be posted adjacent to each elevator call station on all floors. This sign will also provide a pictorial representation and indicate that the elevator will not operate and that exit stairs should be used.

7.2. Stairway identification signs will be provided in compliance with CBC Section 1022.8

7.2.1. The signs will designate the floor level, the terminus of the top and bottom of the stair, and the stair identification.

7.2.2. The signs will state the story floor level.

7.2.3. The signs will state the availability of roof access from the stairway.

7.2.4. The signs will be located 5 feet above the floor landing in a position that is readily visible when the doors are in the open and closed positions.

7.2.5. The signs will be coordinated with the fire alarm system descriptions and elevator call level.

7.3. Tactile floor designation signs will also be installed within the stairs per CBC Section 1022.8.1.

7.4. A sign indicating the floor level will be posted facing each set of elevator doors approximately 5 feet above the floor. Numerals will be at least 5 inches high with a 3/4 inch stroke.

- 7.5. The emergency elevator will be identified by the international symbol for emergency medical services (star of life), which will be at least 3 inches high and placed inside on both sides of the hoistway door frame.
- 7.6. Access points to fire and smoke dampers will be permanently identified on the exterior by a label with letters not less than ½-inch in height reading SMOKE DAMPER or FIRE DAMPER.
- 7.7. Signs will be placed on each fire department connection indicating the minimum required flow and pressure for sprinkler and standpipe system demand.
- 7.8. A sign will be placed on the exterior of the building at the point of access to the Fire Pump Room. Additional signage will be placed at the doors to the Fire Pump Room interior to the building.
- 7.9. Signage will be provided on the exterior access door of the Fire Pump Room, the FCC, Main Electric Room and the Emergency Power Generator Enclosure.

8. SUPPRESSION SYSTEMS

- 8.1. Automatic Sprinkler Protection
 - 8.1.1. Wet-pipe, hydraulically calculated automatic sprinkler systems will be provided throughout.
 - 8.1.2. Automatic sprinklers will be supplied by a combined standpipe system and will be interconnected at the lowest level.
 - 8.1.3. Automatic sprinkler systems will be designed to comply with the requirements of NFPA 13 - 10. A minimum 10 psi safety margin will be incorporated in all sprinkler system hydraulic calculations.
 - 8.1.4. Fire protection piping will be non-combustible where required by NFPA 13-10.
 - 8.1.4.1. Approved steel and/or chlorinated polyvinyl chloride (CPVC) sprinkler piping may be used within the building in accordance with the requirements of NFPA 13 -10.
 - 8.1.5. Automatic sprinklers will be zoned as follows:
 - 8.1.5.1. Each floor MAY constitute a single sprinkler zone. The net floor area for each level served is under 52,000 ft², which is the maximum area allowed per zone.
 - 8.1.5.2. The elevator machine rooms and tops of hoistways will also be sprinklered, as well as within 24-inches of the bottom of the elevator hoistway pit. Since the machine room will be sprinklered, elevator shunt trip systems are required and will be provided.

- 9.9.2. Duct mounted smoke detectors installed in accordance with CBC Sections 907.2.13.1.1 and 907.3.1.
- 9.9.3. Fire Pump status (pump running, loss of phase, phase reversal, alternate power source).
- 9.9.4. Fire water storage tank high and low water level status, if provided onsite.
- 9.10. System smoke detectors will be provided at the following locations:
 - 9.10.1. Each elevator lobby/landing and elevator machine room.
 - 9.10.2. In each interior corridor on floors serving residential units.
 - 9.10.3. At the top of each elevator hoistway.
 - 9.10.4. Where fire-protection rated doors are held open by magnetic devices.
 - 9.10.5. Where necessary to close smoke/fire dampers when duct detectors are not installed.
 - 9.10.6. In all rooms that contain a fire alarm control unit and are not continuously occupied.
 - 9.10.7. In each mechanical equipment, electrical, transformer, telephone equipment or similar room which is not provided with sprinkler protection.
 - 9.10.8. Within 5 feet of each entrance to pressurized stairs when area detection is not provided.
- 9.11. Duct type smoke detectors will be provided at the following locations:
 - 9.11.1. Air handling unit supply and return air duct serving any system delivering more than 2,000 Cubic Feet per Minute (cfm).
 - 9.11.2. Main supply and return plenums at each air conditioning system downstream of the last inlet.
 - 9.11.3. Where necessary to close fire/smoke dampers. Duct type smoke detectors used for fire/smoke damper closure will be listed for low air flow velocities.
- 9.12. Heat detectors will be provided at the top of each elevator hoistway and within 2 feet of each sprinkler within elevator machine rooms for the purpose of elevator shunt trip.

10. FIRE ALARM AND EMERGENCY COMMUNICATION SYSTEMS

10.1. Voice Alarm System

- 10.1.1. All fire alarm initiating devices will activate audible and visual warning devices. An alert tone, followed by automatic voice instructions, will occur throughout the building on a selective basis in accordance with

- CBC Section 907.2.1.1. Alarms will occur on the fire floor, the floor above and the floor below. This includes alarms on each side of the horizontal exit.
- 10.1.2. The FCC will contain controls for manually activating the voice alarm system on a selective, general and all-call basis.
- 10.1.3. The voice alarm system will be designed and installed in accordance with CBC Section 907.5.2.2 and NFPA 72 Section 6.9. It will provide 15 db above ambient throughout the protected areas.
- 10.1.4. The FCC will contain controls for manual operation of the voice alarm system.
- 10.1.5. Speakers will be provided throughout the protected areas, including the residential units.
- 10.2. Audible zones
 - 10.2.1. The voice alarm system will be zoned to be coordinated with fire alarm, sprinkler, smoke control, and egress zones.
 - 10.2.2. Speakers in stairwells and elevator cabs will be designed such that they can only be activated manually from the FCC. Only live voice announcement capabilities will be provided in these locations (no pre-recorded messages in stairs or elevators). Live voice messages will be manually activated from the FCC.
 - 10.2.3. Throughout the building, specific fire alarm devices, the Fire Alarm/Smoke Control Matrix Plans will initiate a general alarm on the floor of origin, the floor above and the floor below.
- 10.3. Listed Visual Notification Devices:
 - 10.3.1. Will be installed in accordance with NFPA 72 National Fire Alarm Standard.
 - 10.3.2. Will be installed at all accessible public and common use locations in accordance with ICC/ANSI A117.1 and ~~2010~~ 2013 Edition, CBC requirements.
 - 10.3.3. Visual appliances will be wall-mounted at no less than 80 inches and no greater than 96 inches above the finished floor or 6 inches below the ceiling, whichever is lower.
 - 10.3.4. .
- 10.4. Fire department phone jacks, or portable radios will be installed to allow communication between the FCC and the following locations:
 - 10.4.1. Each elevator car and elevator landing.

~~10.4.2. Within each tower stair at every main floor landing and roof level landing, adjacent to the entry door.~~

10.4.3. Emergency and standby power rooms (generator room).

10.4.4. Fire pump room.

11. SMOKE MANAGEMENT SYSTEM

11.1. Passive Smoke Management

11.1.1. Due to the level of compartmentation proposed for this building, passive smoke control design concepts will be used for all levels.

11.1.2. Mechanical and electrical equipment rooms that do not communicate via airflow with any adjacent space will be considered passive enclosures.

11.1.3. The Basement levels, if provided, will be treated as passive zones, separated from the levels above and below by the 2-hour fire-resistive floor slab.

11.2. Stair and vestibule pressurization systems: High Rise Provisions: Occupied Floor located >75' above lowest level Fire department Access.

11.2.1. All enclosed exit stairs will be pressurized to maintain at least 0.05 inches water column (WC) positive relative to the vestibule.

11.2.2. The vestibule will be pressurized to maintain a pressure difference of 0.05 inches W.C. negative relative to the stairway and 0.05 inches W.C. positive relative to the fire floor. These pressure differences are maintained with all the doors closed.

11.2.3. A separate fan and shaft will be used to pressurize the stair. The shaft is separated with a minimum 2-hour fire-resistance separation from the remainder of the building and considered a part of the stair enclosure.

11.2.4. Pressure differentials will not be so high as to cause the door opening forces to exceed 30 pounds maximum.

11.2.5. The upper portion of the stairway enclosure will be provided with a barometric relief vent capable of discharging a minimum of 2,500 cfm of air at the design pressure differential.

11.2.6. The systems will operate manually or automatically upon activation of specific fire alarm initiating devices as documented in the Fire Alarm/Smoke Control Matrix included in Appendix A.

11.2.7. Multiple point injection into the stair shaft will be employed with regards to stair pressurization.

11.2.7.1. Vestibule pressurization will be achieved via leakage through the door between the stair and the vestibule.

- 11.2.8. Manual override and status indicators will be provided on the firefighter's graphic smoke control panel in the FCC.
- 11.3. HVAC duct detectors will automatically de-energize air handling units and annunciate at the fire alarm system.
- 11.4. Monitoring of smoke management fans and dampers.
 - 11.4.1. Fans will be monitored with UL-listed current sensors or differential pressure transmitters, to verify air flow.
 - 11.4.2. Fire/smoke dampers associated with mechanical smoke control systems or mop-up systems will be monitored for open/closed status as required for proper operation of the smoke control systems. Where only one position required for life safety purposes, monitoring will be provided only for that position only.
- 11.5. Fans, dampers, controls and other elements of the mechanical smoke management systems will be connected to the standby power supply. Where volatile memories are utilized, a UPS system (battery power) will be provided with appropriate surge protection. Fans, dampers, controls and other elements of the Fire Department mop-up systems will not be connected to the standby power supply
- 11.6. System response time will conform to the requirements of CBC Section 909. Proper operation of fans, dampers, and automatic doors will be indicated at the smoke control panel within 60 seconds after receipt of an alarm condition at the fire alarm control panel.
- 11.7. Smoke Management System Ducts
 - 11.7.1. Duct material and joints will be capable of withstanding the probable temperatures and pressures to which they are exposed.
 - 11.7.2. Ducts that traverse smoke zones will be leak tested to 1.5 times the maximum design pressure. Measured leakage will not exceed 5 percent of design flow.
 - 11.7.2.1. Smoke control ductwork entirely within and serving the respective smoke zone, such as the stairwell pressurization shaft will not require pressure testing.
 - 11.7.3. Ducts will be supported directly from building structural elements by substantial, non combustibile supports.
- 11.8. Smoke Management Fans
 - 11.8.1. Smoke management fan motors will have a minimum service factor of 1.15.
 - 11.8.2. Number of belts on belt drive units will be 1.5 times the standard number with a minimum of 2.

- 11.8.3. Fans will be of the centrifugal, tube axial or vane axial type. Propeller fans will not be used.
- 11.9. Doors in Smoke Barriers
 - 11.9.1. Minimum 20-minute fire-protection rating with smoke- and draft-control assembly.
 - 11.9.2. Doors will be automatic or self-closing.
 - 11.9.2.1. Doors in smoke barriers that are normally open will be provided with magnetic hold open devices that will release upon activation of a local smoke detector or activation of the respective smoke control system.
- 11.10. General Testing Procedure is provided as follows:
 - 11.10.1. Testing of smoke management systems will be by an approved Special Inspections Agency and will consist of the following:
 - 11.10.1.1. Verify sequence of operation as indicated on the smoke control/fire alarm matrix and control diagrams.
 - 11.10.1.2. Verify door opening forces on pressurized stairwells and vestibules do not exceed 30 pounds.
 - 11.10.1.3. Verification of the proper sequence of operation for fans and dampers.
 - 11.10.1.4. Verification of proper transfer of secondary power and operation of smoke control systems on primary and secondary power.
 - 11.10.1.5. The Fire Protection and Life-Safety Systems will be operated and tested by the Contractor under simulated emergency conditions in the presence of the Owners Representative.
 - 11.10.2. Passive Zone Method Testing
 - 11.10.2.1. Passive elements will be pressure tested using a door fan test configuration. The allowable leakage rate will be calculated by the engineer of record using the criteria set forth in the CBC.
 - 11.10.2.1.1. Pressure tests will be performed at a minimum of two dormitory units per floor. If the allowable leakage rate is exceeded, the rooms will be resealed and retested. All failed rooms will be retested to verify compliance after repairs have been completed.

- 11.10.2.1.2. Pressure tests will be performed within the residential unit corridors on both sides of the horizontal exits walls on a minimum of four floors. If the allowable leakage rate is exceeded, the corridors will be resealed and retested. All failed corridors will be retested to verify compliance after repairs have been completed
 - 11.10.3. Stair/vestibule pressurization fans will be activated in accordance with the functional matrix and the pressure differential will be measured between the stair and vestibule and the vestibule and adjacent floor area. The pressure differential will be shown to maintain 0.05" w.c. positive between the stair and vestibule, as well as the vestibule and floor. Door forces will be measured to verify that a maximum 30 pound force is not exceeded. The barometric relief vent at the top of the pressurized exit enclosures will be verified to discharge a minimum of 2,500 cfm of air when the design pressure in the stair and vestibule is achieved.
- 11.11. A graphic Annunciator Control Panel for the mechanical smoke control systems will be provided in the FCC, and will contain the following:
 - 11.11.1. On/off/auto control switches, which operate stairwell pressurization fans and any associated dampers.
 - 11.11.2. Fans will be annunciated on a per-stair basis.
 - 11.11.3. White lights will indicate that fans and dampers are configured for normal status.
 - 11.11.4. Red lights will indicate that fans and dampers are configured for off or closed status.
 - 11.11.5. Green lights will indicate that fans and dampers are configured for on or open status.
 - 11.11.6. Yellow lights will indicate that fans and dampers are not properly configured (fault status).
 - 11.11.7. Each stairwell will be provided with separate controls and status indicators.
 - 11.11.8. A detail documenting the proposed layout of the graphic annunciator panel will be submitted for review and approval prior to fabrication.

12. FIRE COMMAND CENTER:

~~REQUIRED FOR THE PROPOSED PROJECT AND THE PROPOSED ALTERNATIVE 1 PROJECT:~~

- 12.1. The Fire Command Center (FCC) will be located in the Parking Garage and will have direct access from the exterior. A minimum of three (3) Reserve or Jamul

Tribal Firefighter/EMT will be assigned to the to the FCC 24 hours per day. The FCC will also serve as the Casino EMT Office.

- 12.2. The FCC is at least ~~400~~ 200 ft² with a minimum dimension of 8 10 feet and will contain the required panels, equipment and reference materials.
- 12.3. Annunciation of active fire protection systems will be provided at the FCC. The following items will be located in the FCC.
 - 12.3.1. Fire detection and alarm system annunciator panels including the Firefighter's Smoke Control Panel (FSCP). Annunciation will occur via LCD at the fire alarm control panel and via LED at a graphic annunciator panel in accordance with CBC Section 907.6.3.1.
 - 12.3.2. Fire Pump status indicators. Indicators include Fire Pump running, loss of phase, phase reversal and controller connected to alternate source.
 - 12.3.3. ~~Secondary water supply tank level indicator, as required.~~
 - 12.3.4. Status indicators and controls for stairwell pressurization fans.
 - 12.3.5. Standby and emergency power status indicators.
 - 12.3.6. Elevator status panel for elevator cabs, visually indicating the location of the elevators and whether they are operational.
 - 12.3.7. Voice alarm system panels with a microphone cord of sufficient length to reach all points of the room.
 - 12.3.8. Fire Department voice communication system(s) and six (6) hand-held phone sets.
 - 12.3.9. Automatic Fire Sprinkler valve and waterflow detector display panels.
 - 12.3.10. A telephone for Fire Department use with direct access to the public telephone system. Cord will be of sufficient length to reach all parts of the room.
 - 12.3.11. Up-to-date master gas, electric and exit drawings, as well as fire sprinkler/standpipe and fire alarm drawings, a copy of the current approved FPR and a half-size set of the approved building drawings.
 - 12.3.12. A work table, desks and chairs.
 - 12.3.13. Generator supervision devices, manual start and transfer features.
- 12.4. Details of the annunciation and control panels to be installed in the FCC
- 12.5. The FCC will not be used for housing of any boiler, heating unit, generators, combustible storage or similar hazardous equipment or storage.

13. EMERGENCY AND STANDBY POWER

- 13.1. A new emergency generator will be provided to supply emergency and standby power for this project.

- 13.2. The generator will be located either on the exterior or inside ~~to the gaming-Parking~~ Structure.
- 13.3. The emergency power systems will supply the following:
 - 13.3.1. Exit signs and means of egress illumination.
 - 13.3.2. Lighting circuits for elevator cabs, FCC, mechanical equipment rooms and secondary fire department response location.
 - 13.3.3. Fire alarm and supervisory systems.
 - 13.3.4. Fire detection and supervisory systems.
 - 13.3.5. Sprinkler alarm and supervisory systems.
 - 13.3.6. All required communication and public address systems.
 - 13.3.7. The electric fire pumps.
 - 13.3.8. Fire pump controllers and status panels.
- 13.4. Standby power will be provided for the following:
 - 13.4.1. Smoke management systems, panels and controls, including stair and vestibule pressurization systems.
 - 13.4.2. Elevators (one at a time in each bank).
 - 13.4.3. Continuously operating exhaust fans where fire/smoke dampers have been omitted (bathroom/toilet exhaust fans).
 - 13.4.4. Air conditioning for elevator machine rooms.
 - 13.4.5. Accessible means of egress elevator.
- 13.5. Transfer Time
 - 13.5.1. 10 seconds for Emergency Power items listed in Section 13.3.
 - 13.5.2. 60 seconds to full power for items listed in Section 13.4.
- 13.6. Generators will be provided with manual controls for activation and de-activation remotely at the fire command center.

14. ELEVATORS

- 14.1. Standby power will be provided for one elevator in each bank and will automatically be transferable to all other elevators in the bank to allow for recall to the designated level. Manual transfer of power to each elevator will be provided at the elevator status panel in the FCC.
- 14.2. Hoistway Venting
 - 14.2.1. Elevator shafts will be vented to the exterior.
 - 14.2.2. The vent area will be at least 3.5% of the shaft area with not less than 3 ft² per elevator.

- 14.2.3. Each hoistway will be vented independently of other hoistways.
- 14.2.4. Hoistways will not be vented through the elevator machine rooms.
- 14.2.5. Hoistway provided with an automatic vent dampers will have the dampers activated upon detection of smoke from any of the elevator lobby smoke detectors or detectors at the top of each hoistway.
 - 14.2.5.1. In addition, manual controls for the hoistway vent dampers will be provided on the Plans located in the FCC.
 - 14.2.5.2. Hoistway vent damper status will be provided on Building Plans.
- 14.3. See Section 4.2 of the FPP for information on elevator shaft construction and elevator lobby construction requirements.
- 14.4. Each elevator landing will be provided with area smoke detector(s) installed within its/their listing(s).
- 14.5. With elevators under normal or standby power, activation of an elevator lobby or machine room smoke detector will cause automatic recall of all elevators serving that bank. The cabs will return nonstop to the porte cochere level or designated Level of Exit Discharge. If detection occurs at the lobby level, the elevators will recall to the casino level.
- 14.6. Manual Overrides
 - 14.6.1. A three-position (on/off/bypass) key-operated switch will be provided at the lobby level for each bank of elevators for emergency override.
 - 14.6.2. A three-position (on/off/hold) key-operated switch will be provided inside each elevator cab.
 - 14.6.3. Elevator keys will be provided for Jamul Village Fire Department use in case of emergency in a lockable cabinet in the FCC.
- 14.7. Each elevator machine room will be provided with smoke detector(s) installed within its/their listing(s).
- 14.8. Fire Department Emergency Elevator
 - 14.8.1. At least one elevator will be provided for fire department emergency access to all floors. The elevator will be able to accommodate a 24-inch by 84-inch ambulance stretcher in the horizontal, open position.
 - 14.8.2. Any emergency elevator provided in accordance with CBC Section 3002.4 will be identified with the international symbol for emergency medical services (star of life). The symbol will not be less than 3 inches high and shall be placed inside both sides of the hoistway door frame.
- 14.9. Since the elevator machine rooms and top of hoistways will be provided with sprinklers, elevator power shunt trip will be provided. An override for elevator

shunt will be provided within the FCC to allow for power to be transferred back to these elevators after a shunt condition.

15. HAZARDOUS MATERIALS

15.1. Emergency Generator fuel storage

15.1.1. The fuel storage is located as a self-contained double wall Fuel Tank as part of the Emergency generator

15.1.2. The Emergency Generator Manufacture will provide specifications indentifying the number gallons of diesel fuel in the Fuel Tank and hours of operation anticipated given the Fuel Tank quantity.

15.1.3. Fuel storage will comply with the hazardous materials provisions of the 2013 Edition, California Fire Code (CFC), Chapters 27 & 34. for Class II, Combustible Liquids

| | | |
|--|--|--|
| NOTE: Listing of HAZ-MAT as such becomes available | | |
| | | |

15.2. Detailed lists of chemical types and quantities will be provided under separate cover as a separate permit submittal. This information will be provided to demonstrate compliance with the California Building Code Section 414.

16. PERIODIC OPERATIONS AND MAINTENANCE

16.1.1. All active Fire Protection systems and devices will be regularly tested in accordance with the applicable codes and standards by qualified individuals.

16.1.2. Records of maintenance and testing will be retained on-site and presented to AHJ representatives upon request.

17. FUTURE MODIFICATIONS

17.1.1. Any future modifications and expansions will be documented in amendments/addenda to this FPP. The document will be prepared by a design professional licensed in the State of California working within the area of their expertise.

17.1.2. As appropriate, licensed design professionals will be included in the design of all renovations/expansions.

18. CONTROL DIAGRAMS AND QUALITY ASSURANCE SPECIAL INSPECTOR

18.1.1. A Special Inspector will be retained by the Owner to verify compliance with Section 909.

- 18.1.2. Three (3) copies of control diagrams pertinent to the Smoke Management systems will be submitted for approval prior to beginning QAA testing and rough mechanical inspections.

19. ACCEPTANCE TESTING

- 19.1.1. Three (3) copies of a document describing testing procedures of all active fire protection systems will be submitted at least 60 days prior to final testing.
- 19.1.2. The final mechanical QAA report will be submitted inspections department by the smoke control special inspection agency for review and approval at least seven (7) days prior to final testing.
- 19.1.3. See also Section 11.10 of this Report for information on smoke control system testing.

20. CONCLUSION

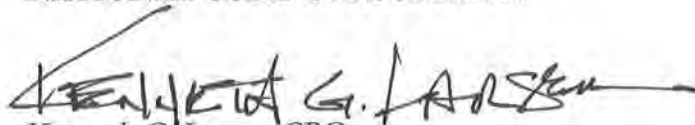
The devices, systems and approaches outlined in this report are intended to provide a level of life safety and property protection which are in compliance with the applicable codes. This level of protection is based on the interaction of both active and passive Fire Protection features. Active systems include fire suppression and detection systems, as well as emergency and standby power, communications and mechanical smoke control. Passive features include compartmentation with fire-resistive separations, Type IA construction, MOE systems and Flame-Spread Index (FSI) limitations.

Nothing in this document is intended to imply non-code compliance.

This report provides Fire Protection Planning Guidelines as developed for the Jamul Indian Village Gaming Project Options Working drawings and specifications will be coordinated to comply with the Fire Protection features outlined in this document.

Prepared By:

NATIONAL CODE CONSULTANTS


Kenneth G. Larsen, CBO



Jamul Indian Village Gaming Project
Fire Protection Plan Report
Jamul, CA

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February 3, 2014
NCC Project No. 11.0118

DISTRIBUTION:

Summit Project Management
Attn: Steve Davis, AIA, Principal

Environmental Data Systems
Attn: Joe Broadhead, Principal

Project Management Team